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THE PRINTER'S COMPLETE GUIDE;

CONTAINING

A SKETCH OF THE HISTORY AND PROGRESS OF

Printing,

TO ITS PRESENT STATE OF IMPROVEMENT;

DETAILS OF ITS SEVERAL DEPARTMENTS;

NUMEROUS SCHEMES OF IMPOSITION;

MODERN IMPROVEMENTS IN STEREOTYPE, PRESSES, AND MACHINERY, &c. &c.

Charles Frederick

BY C. F. PARTINGTON,

Author of an Historical and Descriptive Account of the Steam Engine; and one of the Lecturers at the London, Russell, Metropolitan, and Surrey Institutions, Mechanics' Institution, &c. &c.

ILLUSTRATED BY ENGRAVINGS.

LONDON:
PRINTED FOR SHERWOOD, GILBERT, AND PIPER,
PATERNOSTER ROW.

1825.

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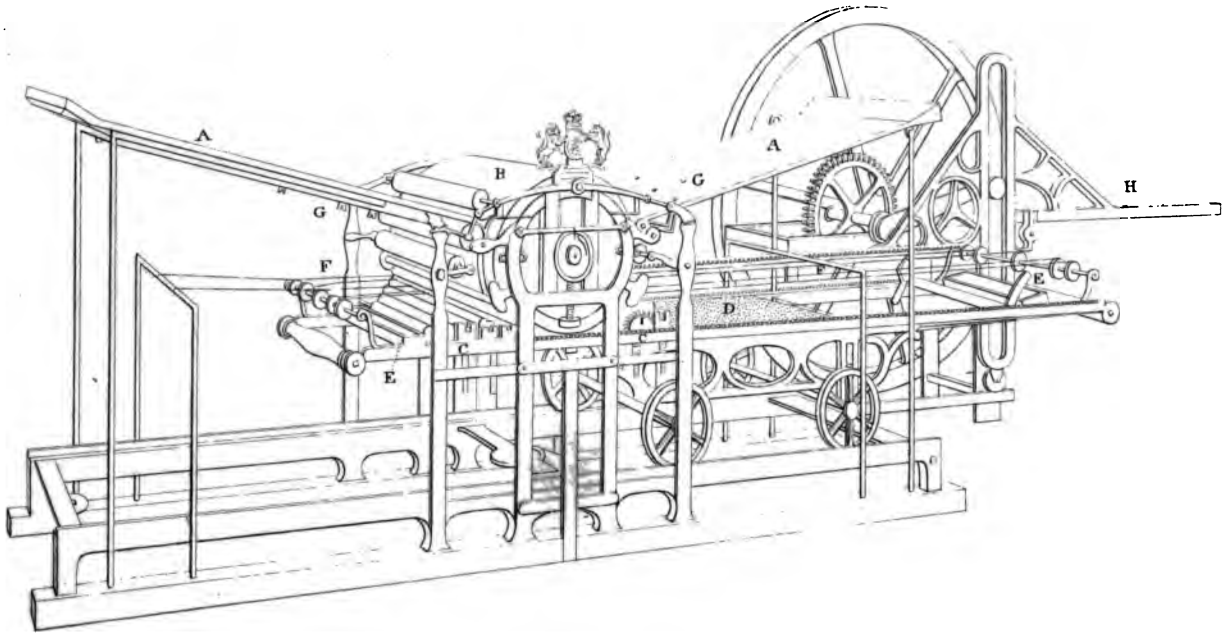
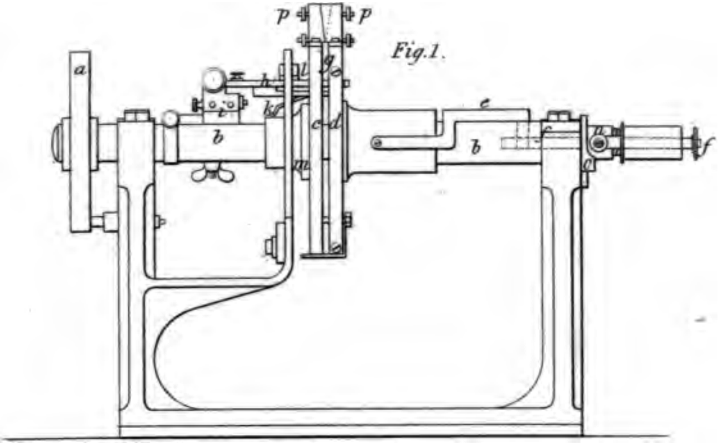


PLATE. V

Henfry & Applegath's Type founding Apparatus.



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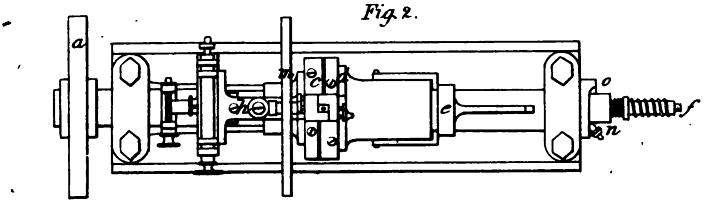

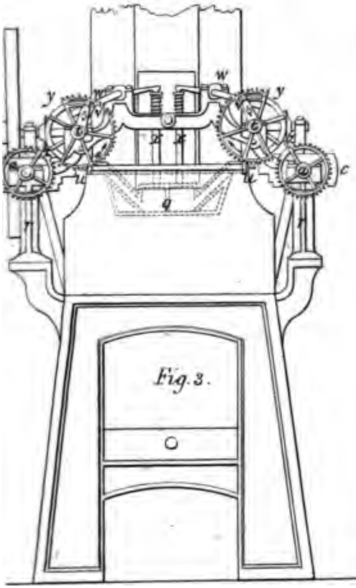

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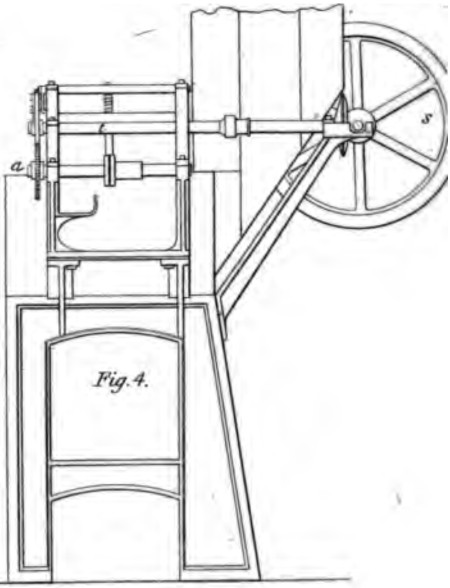

Fig. 4.

G. Gladwin sculp'

THE
PRINTER'S GUIDE.

PRINTING.

THE origin of printing is completely enveloped in mystery; and an art, which commemorates all other inventions—which hands down to posterity every important event—which immortalizes the discoveries of genius and the exploits of greatness—which has been the only effectual instrument that could banish the darkness, and overturn the superstitions of a bigotted age; and which, above all, extends and diffuses the word of God to all mankind; this very art has left its own origin in obscurity, and has given employment to the studies and researches of the most learned men in Europe to determine to whom the honour of its invention is justly due.

The art of printing combines such a number and variety of branches, that it would be absurd to suppose any one person could have invented the whole. In its present state of perfection, it is divided into eight or ten different kinds of manufactures; and even in its rudest state must have required such an extensive acquaintance with mechanics, chemistry, and other branches of science, as could not be supposed to fall to the lot of any one or two men. It is this circumstance, doubtless, which has given plausibility to the claims of the numerous persons handed down to us as the original inventors of the art. The simple idea may have originated with a single individual, but a second person may have made such an important improvement, as almost to eclipse the value of what his predecessor had accomplished. A third person may be supposed to have rendered a still greater addition to the art, and, either in reality or in idea, to attract to himself the merit of the whole: and indeed this appears to be the real merits of the case, and the only possible mode of reconciling the diversified and clashing statements which have been promulgated. The mode of taking impressions from pages cut on blocks of wood, and that which produces the same effect from separate metal types cast for the purpose, is so entirely different, as scarcely worthy of passing under the same name; and in the sequel we shall find that the merit of the two is not confined either to one person, or the honor to one place.

The honor of this invention has been appropriated to several places; to Mentz, to Strasburg, to Harlem, to Dordrecht, to Venice, to Rome, to Florence, to Basle, to Augsburg, &c. Three only of these places, however, deserve any serious consideration: *viz.* Harlem, Mentz, and Strasburg. At the latter place many attempts appear to have been made towards the discovery and completion of the art by John Guttenberg; but as there is no evidence that he actually brought his experiments to bear in the publication of any work at Strasburg, nothing more need be said of this city, though we shall have frequent occasion to introduce the name of this ingenious artist.

The most popular account of the origin of the art of printing is that which is related by Hadrian Junius, in favor of Laurence Coster, of the city of Harlem. This account is contained in his *Batavia*, published after his death at Leyden, more than a century after the supposed invention of the art, and is the only paper, the only testimony, upon which the partisans of the city of Harlem found their typographical system. This Junius had the relation from two respectable men, Nicholaus Galius, who was the schoolmaster to Quirinius Talesius, his intimate friend and correspondent, both of whom had informed him, that they had in their youth heard this same story related more than once, by a certain bookbinder, nearly 80 years of age, named Cornelius, who professed to have been one of Coster's domestics. The substance of the narration of Junius is as follows:—"It is now about 128 years," says Junius, "since Laurence, the son of John, a citizen of Harlem, and surnamed Coster (that is, sacristan or church-warden, at that time an honourable office, and which his family had long held by hereditary right), amused himself, during his walks in the wood near that city, with forming letters of the bark of the beech tree, by means of which he printed upon paper some verses and short sentences, for the instruction of his grand-children. With the assistance of his son-in-law Thomas, the son of Peter, he afterwards invented an ink, more viscous and tenacious than common ink, which was found to blot and fill the letters; with this new ink he printed, in the Flemish language, the *Speculum nostræ Salutis*, a work composed of images and letters. The leaves of this book being printed on one side only, the pages, which were left blank, were afterwards pasted together. After this, Coster abandoned the use of wooden letters, and adopted metal ones; forming them at first of lead, and latterly of tin, which metal is rather harder than the former; some metal wine cups, made from the remains of these letters, may yet be seen in the dwelling-house of his descendants. The great profits, which the inventor derived from this new art, induced him to increase his establishment, and with this view he took some workmen into his family. One of these, who was called John, surnamed Fust, as is suspected, or some other person bearing the name of John, it is of no great consequence which, after having learnt the art of arranging and casting types, as well as all other matters relating to the art of printing, in the knowledge of which he had been initiated under the obligation of an oath, seized the opportunity of his master being engaged at mass, on the night of Christmas-eve, to carry off all the types and implements used in the printing office. He went with his plunder to Amsterdam, in the first instance, then to Cologne, and finally settled at Mentz, where he established a printing office, in which were printed, in the year 1442, with the types stolen from Harlem, the *Doctrinale Alexandri Galli*, and the *Tractatus Petri Hispani.*"

The narrative of Junius has been questioned, and indeed violently opposed by writers of the first literary eminence; and it certainly appears a most wonderful circumstance, that no Dutch writer, nor any work of the 15th, or of the beginning of the 16th century, has made the least mention of this fact,—not even the celebrated Erasmus, who, from having been born at Rotterdam in the year 1467, could not be ignorant of so remarkable an event, and one so creditable to his native country. There are several other objections to the above narrative, which, on the present occasion, cannot be noticed: but, without giving implicit reliance to all the statements contained in this narrative, it appears that Laurence Coster carried the art of printing from impressions cut upon blocks to a greater extent, and applied it to a greater variety of purposes, than any person in Europe who had preceded him; though the merit of even this part of the art is not due to himself, but had been practised in many countries for centuries, and especially in China, where it continues to the present day, with scarcely any variation or improvement.

It may be advisable to divide the progress of the art into four stages:—the first was the mode of striking impressions from signets, seals, and other emblems cut on wood, or other substances, the origin of. which is totally lost in the ages of antiquity. The second stage is that which introduces us to the name and labours of Laurence Coster, who applied this block printing to the publication of books, and of which his *Speculum humanæ Salvationis* is said to be the first of his works.* He may also have the merit of printing from separate wooden letters, cut so as to fit each other when composed together, with, no doubt, the small words of most frequent use cut upon one block, to save the time and labour of the compositor. This occurred between the years 1431 and 1443. The third stage of the art was, the adoption of cut metal instead of wooden letters, which is doubtless to be traced to the labours of John Geinsflesh, jun. who was distinguished by the name of Guttenberg. This person, with the assistance of his father, Geinsflesh the elder, first invented cut metal types, with which was printed the earliest edition of the Bible. This edition appeared in 1450, and the completing of it took up seven or eight years. Geinsflesh used none but cut metal or wooden types. The fourth and last stage of the art, and which brought it to almost as high a state of perfection as it attained for two centuries afterwards, was the mode of casting types in mattrices, which was invented by a servant of Guttenberg's, of the name of Peter Schoeffer. For this valuable service he was admitted into the family of his master, Fust or Faustus, and was rewarded by the possession of one of his daughters. The first work printed on these improved types was the *Durandi Rationale*, in 1459.†

In the year 1462 the city of Mentz was taken, plundered, and deprived of all its ancient rights and franchises, and the art of printing, in the general ruin, was made public, and quickly spread itself over a great part of Europe. Harlem and Strasburg practised it very early; from whence it proceeded to Rome, to Paris, to Constantinople, and to most of the principal towns on the continent.

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* This work consists of pictures out of the Bible, with some of the verses underneath each page, being printed from a block of wood, like a wood-cut.

† Most persons are in possession of the legend of the Devil and Dr. Faustus. The origin of that tale is said to be, that Faust carrying a parcel of his Bibles to Paris, and offering them for sale as MSS. the French, upon considering the number of books, and their exact conformity with each other, even to a point, concluded that there was witchcraft in the case, and, it is said, that by either actually indicting him as a conjuror, or threatening to do so, they extorted the secret. This, however, is but a new edition of a fabulous tale, as the Dr. Faustus who had correspondence with his Satanic Majesty was another person of the same name, who lived at a much earlier period.

The date and the mode of its introduction into England is a subject involved almost in as much mystery as the original invention of the art. It was a constant opinion delivered down by our historians, that the art of printing was introduced and first practised in England by William Caxton, a mercer and citizen of London, who, by his travels abroad, and a residence of many years in Holland, Flanders, and Germany, in the affairs of trade, had an opportunity of informing himself of the whole method and progress of the art, and by the encouragement of the great, and particularly of the Abbot of Westminster, first set up a press in that Abbey, and began to print books soon after the year 1471.

This was the tradition of our writers, till a printed book or chronicle, which had scarcely been observed by the curious, was discovered, said to have been found in the Archbishop of Canterbury's Palace, with a date of its impression from Oxford, anno 1468, and was considered immediately as a clear proof and monument of the exercise of printing in that University, several years before Caxton even returned from his tour on the Continent.

The discovery of this book had well nigh robbed Caxton of the glory he had long enjoyed—of being the author of printing in this kingdom. Its authenticity, however, has been very warmly disputed by Mr. Palmer, in his History of Printing; by Dr. Ducarvel, in his Letters to Meerman; and especially by the learned Dr. Conyers Middleton, who maintains that there was no printing in England till the introduction of it by Caxton, who had acquired it in his travels abroad. Indeed, if the fact were as stated by the supposed Chronicle in the Archbishop's Palace, it would derogate but very little from the honor of Caxton, who was certainly the first person in England who practised the art of printing with fusile types, and consequently the first who brought it to perfection: whereas Corsellis, the other claimant, printed from separate cut types in wood, that being the only method he had learnt at Harlem.*

---

* Great opposition was frequently manifested by magistrates and others, when this useful art was first introduced into a new city or town. We are told, in an old pamphlet in the collection of the Earl of Orford, that when it was introduced into Norwich, a general petition was presented to the magistracy against this unnecessary innovation.

It was not long before types were cast in other languages besides the Roman character. In 1480 the Italians cast a set of Greek types; and the same ingenious artists also cast the Hebrew characters, under the direction of two learned Rabbins, Joshua and Moses, whose works are dated in the Christian era, 1484.*

We have now arrived at a period when the process of printing had become common to nearly every part of Europe, and as the subsequent improvements which have taken place in the art depend rather on the mechanical execution than an alteration in its first principles, it may be requisite to examine these improvements under their separate heads; prior to which, however, it may be advisable to call the reader's attention to the works by which editions of the fifteenth century, without date, may be ascertained.

1. The absence of titles printed on a separate leaf.

It was not till 1476 or 1480, that the titles of books were printed on detached leaves: titles to chapters were first used in the Epistles of Cicero, printed in 1470.

2. The absence of capital letters, at the beginning of divisions.

In the infancy of typography, the printers were accustomed to leave blank spaces at the commencement of books and chapters; which the purchasers of the books afterwards caused to be filled up by the illuminators, who placed the initial letters on these blanks, accompanied by some miniature, or by some ornament of gold, or in various colours.

3. The rare occurrence of such divisions.

4. The disuse of commas and semicolons.

This was a consequence of the exactness, with which the ancient printers imitated manuscripts.

5. The inequality and thickness of the types.

Although this defect is justly imputable to some editions of the fifteenth century, yet others are extant, which are not inferior to some of the best modern printing.

6. The solidity and thickness of the paper.

This mark also is a consequence of the close manner in which MSS. were imitated; the paper being manufactured so as to resemble vellum as much as possible.

7. The great number of abbreviations.

The *z* was commonly used for *et; neq*^{3} and *quib*^{3} for *neque* and

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* The Editor is indebted for the above historical particulars to a valuable MS. Lecture from the pen of his friend, J. Haddon, Esq.

quibus; cpacone for *comparatione;* the letter *q* was frequently printed with a cross along its tail thus q, in order to express *quam, quod, &c.*

8. The absence of the printer's name, of the place where, and the date of the year when, the book was printed.

9. The absence of signatures and catch-words.

Signatures are those letters of the alphabet, which are put at the bottom of the right-hand pages of sheets, to distinguish their order. When the alphabet is finished, a second begins A a, instead of a single A; and when that is terminated, A a a are given for the third, and so on. In order to indicate more correctly the order of each sheet, printers add to the initial letter some figures on the third, fifth, and seventh pages; the numbers of these figures, which do not pass the middle of the sheet, point out the size of the edition. Thus, A 2 on the third page, A 3 on the fifth, and A 4 on the seventh page, shew a work to be in octavo. In the duodecimo size, A 5 occurs on the ninth page, and A 6 on the eleventh page, &c.

In some modern French works, figures are substituted for letters, and the other leaves are marked by asterisks.

The invention of signatures is ascribed by M. Marolles to John of Cologne, who printed at Venice in 1474: the Abbé Rive attributes it to John Koelhof, a printer at Cologne, and cotemporary with the former; from whom we have a work dated in 1472. It is intituled (according to Laire, for Rive has only alluded to the book) *Joannis Nyder præceptorium divine legis,* folio, with the following subscription: *Impressum colonie per magistrum Joannem Koelof de Lubick, anno Dni* MCCCCLXXII. In his notice of this work, Laire remarks, *Folia signantur ab* a. *ad* mmiijj, *iterato alphabetico progressu.* This account of Laire is confirmed by Santander; who adds, that this book is the more remarkable as being the first that issued from Koelhof's presses. The subscription is followed by twenty-eight leaves, *without signatures,* containing the alphabetical table of matters.

Catch-words (*Literæ reclamantes* or *custodes*) are those words, formerly placed at the right-hand corner of the blank line, which terminates each page of a sheet: they are always the same as those with which the following page begins. Their use is to assist the bookbinder in his work, and to prevent mistakes in arranging the sheets. Catch-words are found in MSS. of the eleventh century, and were first applied to printing, by Vindelin de Spira at Venice: they are now almost generally disused, both in England and on the Continent.

Upper Case.

A	B	C	D	E	F	G	A	B	C	D	E	F	G
H	I	K	L	M	N	O	H	I	K	L	M	N	O
P	Q	R	S	T	V	W	P	Q	R	S	T	V	W
X	Y	Z	Æ	Œ	U	J	X	Y	Z	Æ	Œ	U	J
1	2	3	4	5	6	7	â	ê	î	ô	û	§	‡
8	9	0	ç			£	á	é	í	ó	ú	‖	†
ä	ë	ï	ö	ü		k	à	è	ì	ò	ù	¶	*

Lower Case.

<table>
<tr><td>—</td><td>]</td><td>æ</td><td>œ</td><td>’</td><td>j</td><td rowspan="3">e</td><td>Thin Spaces.</td><td>)</td><td>?</td><td>!</td><td>;</td><td></td><td>fl</td></tr>
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<tr><td>ffi</td><td>~∽</td><td>fi</td></tr>
<tr><td>ffl</td><td rowspan="2">l</td><td colspan="2" rowspan="2">m</td><td colspan="2" rowspan="2">n</td><td rowspan="2">h</td><td rowspan="2">o</td><td rowspan="2">y</td><td rowspan="2">p</td><td rowspan="2">,</td><td rowspan="2">w</td><td rowspan="2">n Quadrats.</td><td rowspan="2">m Quadrats.</td></tr>
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<tr><td>x</td><td>.</td><td>-</td></tr>
</table>

On the Position.

Having arrived at that part of our work which more immediately concerns the young beginner, we shall now set out with making a few observations on the position or attitude he should endeavour to acquire at case, on his first introduction to that part of the business. This does not appear to have been of sufficient importance to arrest the attention of former writers on this subject, yet so great is the evil resulting from falling into improper habits at first, that nothing but a determined perseverance in those who have experienced their ill effects can remedy them. Many men now working in the trade, frequently reflect, and with much justice, on persons under whose care they were brought up, for omitting to check them in those ill becoming postures which produce knock knees, round shoulders, or other deformities. It is to be regretted that those who undertake so important a charge, as the instruction of youth in the first rudiments of the art, are not better qualified, or do not bestow on their trust a greater attention.

What to a learner may appear fatiguing, time and habit will render familiar and easy; and though to work with his cases on a level with his breast may at first tire his arms, yet use will so inure him to it, that it will become afterwards equally unpleasant to work at a low frame. His perseverance in this mode must be strengthened by the reflection that it will effectually prevent his becoming round shouldered, a distinguishing mark by which compositors are in general known, especially if they are above the common stature. This method will likewise keep the body in an erect position, and prevent those effects which result from pressure on the stomach.

The standing position should be easy, with the feet not too much apart; neither should the idle habit of resting one foot on the bed of the frame be encouraged, or standing with one foot bent inwards, the certain forerunner of deformity. The head and the body must be kept perfectly steady, the arms alone performing the operations of distributing and composing.

The question still remains undecided with many masters, as to the most proper part of the business that should first engage the attention of the learner without confusing his ideas; various methods are adopted, each following the mode he thinks best. Sorting pie is generally the first employment, and afterwards to set it up again, which unquestionably gives them a strong insight into the nature of the business, makes them acquainted with the different sizes of type and the method of composing, and prepares their understanding for the comprehension of whatever direction may be given them when they are put to the case.

Distributing.

The compositor having made himself perfectly acquainted with both the upper and lower cases, and with the face of the letter, to enable him to distinguish between the b and the q, the d and the p, the n and the u, &c. he is generally put to distributing, or conveying the different sorts of letter to their respective apartments; the person under whose care he is brought up working by his side, in order to give him instruction and assistance as he goes on.

He should be cautioned to take up but a small quantity of matter at a time, for, should he break a handful, he will have but little pie to clear. Even to those who are not likely often to meet with this accident, the caution is not unnecessary, as too great a weight weakens the wrist, and it is a mistaken notion that it gains time, for if one handful fall into the case, it will be more than equivalent to the time saved. When the accident does take place, the pie should be cleared away before any thing else is done.

In taking up a handful, the head of the page should be towards the distributor, which prevents the trouble as well as danger of turning it round, in order to have the nick uppermost. So much matter should only be taken up at a time, as can be conveniently held in the left hand, and not to be higher than the thumb, which guards the ends of the lines from falling.

He should be careful not to throw the letters into the case with their face downwards, as it batters them; neither should he distribute his case too full, for it invariably creates pie.

He should not be too impatient to gain the reputation of a swift compositor; his principal study should be to acquire a proper method, though his progress be slow; this attained, expedition will follow from practice, and he will find his advantage in composing from a clean case, though he may be longer in distributing it. A man loses double the time in correcting that he imagines he saves from quick and slovenly distribution.

With many compositors much time is unnecessarily lost in looking at the word before they distribute it. By proper attention in the learner he may avoid this, and become, without the appearance of hurry, an expeditious as well as a clean distributor—to attain which, we would recommend him never to take more letter between his fingers, than he can conveniently hold, and, if possible, always to take an entire word; to keep his handful in an inclining position, so that the face of the letter may come more immediately under his eye. By proper attention and practice he will become so completely acquainted with the beard or beak of the type, as to know the meaning of the word he takes up, with the cursory view he may have of it, while in the act of lifting it.

It is to this method that so many in the business are indebted for their expedition and cleanness in distribution; though to an observer the movement of their hands appears but slow. It is not to velocity of movement that expedition is to be gained, either in composing or distributing,—it is to *system,* without which their attempts may have the appearance of expedition, but eventually produce only fatigue and delay. To system, therefore, we would particularly call the compositor's attention, as accurate distribution generally produces clean composition, and saves time at the stone; they cannot, therefore, be too attentive to that part of their business.

Another material point before distributing is the well-laying up of the form. In this particular many compositors are frequently remiss, and from this negligence arise inconveniences which lose them more time than if they had first taken the necessary pains, besides the unpleasantness of working with dirty letter.

The letter-board should always be kept clean, and the bottom as well as the face of the form well washed before it is laid on the board and unlocked, for if any of the dirt remain from the ley-brush after it is unlocked, it will sink into instead of run off the matter. This precaution taken, the pages should be well opened, and the whole form washed till the water appears to run from it in a clean state. A form cannot be well laid up without a plentiful supply of water. If the form appears particularly dirty, it will be better to lock it up again, and drive out the filth; then rince the bottom and begin as before. The letter once washed perfectly clean, may with little care and attention be kept so.

Some compositors make use of alum, on which they rub their fingers, for the purpose of contracting the grain of the skin: this clearly proves a want of cleanliness, for if the letter were kept free from dirt, it would not become slippery and require the use of alum.

It is frequently necessary after distribution, to dry the letter by the fire; in this case the compositor should be extremely cautious not to use it till it be perfectly cold, as very pernicious effects arise from the antimony which the heat of the fire brings into action when applied to the tender particles of the skin. It is always better, when it can be so managed, to distribute the letter at night, or before meals, that it may have time to dry gradually.

We shall now proceed to the business of composing. When the copy of a work is put into the hands of the compositor, he should receive directions respecting the width and length of the page; whether it is to be leaded, and with white lines between the breaks; and whether any particular method is to be followed in the punctuation and in the adoption of capitals. These instructions being given, the compositor will make his measure to the number of pica m's directed, which is done by laying them flat-ways in the composing stick, and then screwing it up, not so tight as to strain it, nor so slack as to allow the measure to give. He then fits a setting rule to the measure, and his case being supplied with letter, he is prepared for composing.

If the copy he has been furnished with be a re-print, he will observe whether there be any difference between the type he is about to use and his copy, that the spacing may not be affected, against which he must take the necessary precautions at the time, by widening or lessening the measure, if solid matter, or driving out or getting in each paragraph, if leaded. He should select a close spaced line from the copy, which will at once prove if there be any variation.*

Having taken notice of the state of the copy, and received proper directions, the compositor begins his work; and here we would particularly call his attention to those rules by which he may compose with accuracy, ease, and expedition.

In composing, the left hand, containing the stick, should always follow the right, which takes up the letter; if it remain stationary, much time is lost in bringing each letter to it, by traversing a greater space than is necessary. The eye should always be fixed on the nick of the letter before it is taken up; and this will prevent any unnecessary or improper motion, as it may be lifted and conveyed to the stick in its proper position. A sentence of the copy should, if possible, be committed to memory at one time; and while in the act of placing a point or a space at the end of it, the eye is at full liberty to revert again to the copy. It is to expedition in this particular that those compositors, who have the reputation of being good workmen, are indebted for their swiftness. The time gained by this plan is very considerable, without any appearance of bustle or fatigue. By thus taking into the memory a sentence at a time, the connexion of the subject is preserved, and the punctuation attended to with less difficulty.

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* It may be proper to observe, that all measures are made to pica m's, though the work may be printed in a different size type; and that all leads, &c. are cast to those m's; which standard being abided by, leads can always be had for any size page, without the expense of casting, or the trouble of cutting.

From habit the compositor becomes so well acquainted with the peculiar feel of each type, that he can generally detect a wrong letter without looking at it. Those who distribute carefully, will generally compose accurately, and it may be advisable for the compositor to cast his eye over the line as he justifies it, as no time will be lost by adopting this method, and it will enable him to be much more accurate.

Uniformity in spacing is an important branch of the compositor's business requiring care and judgment, and ought to be particularly impressed on the mind of the young beginner. Close spacing is as unpleasant to the eye as wide spacing, and ought never to be allowed except in very narrow measures, and frequently, even then, with care it might be dispensed with. What is commonly termed the composing space, is the best and proper separation between each word; though this cannot always be adopted in narrow measures, with large letter. It is not merely necessary to have a line here and there uniformly spaced, as a careful compositor will be anxious to give to every page that uniformity of appearance which is one of its chief excellences. Careless compositors will never preserve this desirable uniformity; for when their proofs are crowded with corrections, the utmost care in rectifying those blunders will not make the spacing regular. We must therefore press on the mind of the young beginner this important maxim—That it is better to do little, and to be determined to do that little *well*, than to be anxious to put together a great number of letters, without any regard to accuracy and uniformity; but when alterations and additions are made by the author in the proof sheet, it becomes difficult, where there are few paragraphs, to make the spacing equal.

Many compositors, in correcting, do not overrun the matter as they ought to do, in the stick, but on the stone, and frequently hair-space, or treble-space, a line, in order to get in or drive out a word; when, by overrunning a line or two forward or backward, they might preserve uniformity.

Where a line is even spaced, and yet requires justification, the additional space should be placed between those words where it will be the least observed, *viz.* between a d and an h, being perpendicular letters, and admitting of the addition, but not in a greater degree than a middling and thin space to a thick spaced line; or, after a kerned letter, the beak of which may bear upon the top of one that is perpendicular, as the f and the h; but not always after a kerned letter, as the f and the w, where the distance would be too conspicuous, which is one reason why an n-quadrat should not always be placed after an f, as was formerly directed.

The same rule should be observed where it may be necessary to reduce the spacing of a line; less space is required after a sloping letter than a perpendicular one, and even after a comma, though in regular spacing all points should have an n-quadrat after them, except the full point, which must have an m-quadrat, as terminating a sentence.

Spaces are cast to such a regular gradation, that no excuse can be offered on the part of the compositor for irregular spacing.

Having made these preliminary and most essential remarks, we may proceed. Should the length of the page be left to the discretion of the compositor, he sets as many lines as he conceives a fair proportion, which is generally considered as nearly double its width, then places the head and white line to it, and cuts an exact gauge.—This is done before he makes up the first page, as that will vary according to the different founts there must necessarily be in it.

Head-lines are generally set in small capitals of the same fount, or in Italic. Capitals of letter about three sizes smaller than the body of the work, with folios of a proportionate size, have a much neater appearance than either of the foregoing. If folios only are placed at the top of the page, it is better to make use of full-faced figures, without parentheses or crotchets.

Where a work consists of more than one volume, the first page of each sheet should contain the volume to which it belongs, in the left-hand corner of the signature line. Signatures are generally set in small capitals; and where they extend to more than one alphabet, the second should begin with 2 A, 2 B, and so on.

The title, preface, &c. of a volume is generally left till the body of the work is finished, as many circumstances may alter the author's original preface, date, &c. or the work may conclude in such a manner as to admit of their being brought in at the end, in order to complete a sheet, half-sheet, &c. which save both paper and press-work. For this reason it is customary to begin the first sheet of every work with the signature B, leaving A for the title sheet. To a sheet of octavo, two signatures only are necessary, and are placed to the first and third pages; to a sheet of twelves, three signatures, and are placed to the first, third, and ninth pages, in the following manner; B, B 2, B 3.

In magazines, and works of that nature, printed in half-sheets, figures of a bold face are sometimes put instead of letters, for signatures. This plan is adopted in many respectable houses. It is less liable to cause confusion with the binder, particularly in works of five or six hundred pages.

Instead of beginning the work with a two-line letter, a capital of the same fount, without any indention is much neater, and now generally used; the remainder of the word being set in small capitals.

We now proceed to the second page, and set the running title in a neat letter, proportioned to the size of the page; but this must be governed by the quantity of matter to be introduced at the head of it. A full line, as a running title, has a clumsy appearance, and should be avoided if possible. To a solid page, two leads make the usual white after the head; to a single-leaded page, three leads or a long-primer white; and to a double-leaded page, a pica white.

It has long been, and still is, a practice too prevalent among compositors, to drive out a word at the close of a paragraph, or even to divide it, in order to reap the advantage of a break line. Part of a word, or a complete word in a break line, if it contain no more than three or four letters, is improper. It should be the business of the corrector at all times to notice this encroachment. The last line of a paragraph should not on any account begin a page, neither should the first line of it come at the bottom of a page, if the work has white lines between the breaks. To obviate which, the compositor may make his page either a line short or long, as most convenient, taking care that the page which backs it corresponds, so that it may not have the appearance of differing from its proper length.

If the work is very open, consisting of heads, whites, &c. the compositor must be particularly attentive to their depth, so that though the white may be composed of different sized quadrats, yet that their ultimate depth shall be equal to the regular body of the type the work is done in; for unless care is taken in this particular, the register must be incomplete. The pressman cannot make the lines back if the compositor is not careful in making up his matter.

The first line of a new paragraph is indented an m-quadrat, of whatever size the letter of the work may be. Authors vary materially in the mode of making paragraphs: some carry the argument of a position to a great length before they relieve the attention of the reader; while others break off almost at every place that will admit only of a full point. But in this case the compositor will act most judiciously by following the author's plan, unless, upon particular occasions, it may be necessary to multiply or reduce the breaks in the copy, if it can be done with propriety, in order to make the work look uniform. Authors should always make the beginning of a new paragraph conspicuous to the compositor, by indenting the first line of it far enough to distinguish it from the preceding line, in case it should be quite full.

After the body of a volume is completed, the contents and index are composed, the one placed at the beginning and the other at the end of the volume. They are both generally set in letter two sizes less than that of the work, and begun upon an uneven page. Running titles may be set to an index, but folios are seldom put, unless with a view to recommend the book for its extraordinary number of pages; for as an index does not refer to its own matter by figures, they are needless in this case. The signatures, however, are always carried on regularly to the last whole or half sheet of the work.

It was formerly the plan to set the subject word of each article in Italic, and all the rest in Roman, indenting all the matter an m-quadrat that makes above one line, what is technically termed—to run out and indent; but the Italic is now in a great measure exploded, it being attended with extra trouble, and at the same time destroys the uniformity of the page.

Care should be taken that the subject words are ranged alphabetically, as it is not expected that the compositor will transpose his matter afterwards, which is attended with loss of time, without being paid for it.

Where figures are in regular succession, a comma is put after each folio; and where their order breaks off, a full point is used. Thus, for example, after 5, 6, 7, 8, commas are put; and after 12. 16. 19. 24. full points; but to save figures and commas, the succession of the former is noticed, by putting a rule between the first and last figures, thus; 5—8. Again, if an article has been collected from two pages, the folio of the second is supplied by *sq.* or *sequente;* and by *sqq.* or *sequentibus,* where an article is touched upon in different succeeding pages. A full point is not put after the last figures, because it is thought that their standing at the end of a line is a sufficient stop. Neither is a comma or a full point placed to the last word of an article, in a wide measure and open matter; but it is not improper to use a comma at the end of every article in narrow columns, or where figures are put after the matter, instead of running them to the end of the line.

At the conclusion of the index, the volume is considered as completed, with the exception of the title, preface, &c. A compositor's first consideration then is, in what manner the work has ended, wh number of pages the titles, &c. will make, and whether he can impo them in such a form as to save paper or press work. To answer th purpose, a preface may be drove out or got in; or if matter is wante it is customary to set a half-title.

The method of setting or displaying a title page is governed entirel by fancy; and in this country, of late years, the style is much altere for the better, as a comparison between the title pages of the sixteent and the present century will fully prove. No fixed rules for instru tion on this head can be laid down, as it depends so much on the tas and ingenuity of the compositor; we shall, therefore, recommend th learner, as a help or guide to him in this part of his business, refer to printed titles which are considered neatly executed. It woul be desirable, if our limits could admit of it, to give specimens some of this description, that they might be readily referred to at a times.

Authors should endeavour to make their title pages as short an concise as possible, for a crowded title can never be displayed wi elegance or taste.

The dedication generally follows the title, and seldom exceeds o page. It should be set in capitals and small capitals, displayed the manner of a title; but where it extends to a considerable lengt it is generally set in a letter two sizes larger than the work. A fol is not required where it does not exceed a page; but if it happens be the third page of the sheet, the signature must be inserted.

Formerly, the preface was uniformly set in Italic; at present, th plan is seldom adopted, and Roman is used in its stead, of one si larger than the body of the work. The running title to the preface commonly set in the same manner as those of the body of the wor at the same time the folios are put in numeral letters, beginning wi ii over the second page, and continue the rest in the usual mann If the work itself was printed with folios only, then the preface shou have them also in the middle of the line.

The title, dedication, preface, introduction, &c. form what called the title sheet, *viz.* signature A, which makes the bookselle alphabet (consisting of 23 letters) complete, provided that the bo of the work begins with B. To ascertain more readily how ma sheets a book consists of, more than are marked with signatures capitals or small capitals, a lower case Roman a is put to the fi sheet after the title sheet, and thus carried on till the beginning the body of the work.

What has been observed concerning prefaces, relates equally to introductions, drawn up and intended to elucidate their respective works.

The contents follow the preface or introduction, and are either set in Roman or Italic, and, as before observed, two sizes smaller than the body of the work; the first line of each summary full, and the rest indented an m-quadrat, with the referring figures justified at the ends of the respective lines.

The errata are put immediately before the body of the work, or at the end of it: and it is most devoutly to be wished, that works could issue from the press perfectly free from errors; but we may say with Pope—

> Whoever thinks a faultless piece to see,
> Thinks what ne'er was, nor is, nor e'er shall be.

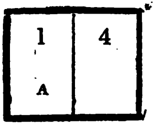
It is necessary, before we leave the subject of composing, to make a few observations on the method of tying up a page, which is done with a piece of fine packthread, turned four or five times round it, and fastened at the right hand corner, by thrusting a noose of it between the several turnings and the matter with a piece of brass rule, and drawing it perfectly tight; taking care, during the whole time, to keep the forefinger of the left hand tight on the corner to prevent the page from being drawn aside when the cord is strained.

The page being tied up, the compositor removes it pretty far from the ledges of the galley, to see if the turns of cord lie about the middle of the shank of the letter; if they lie too high, as is generally the case, he thrusts them lower, and if the page be not too broad, he places his fore-finger, or both, of his right hand, on the right side of the page, and his thumb on the left; then bending his other fingers under the head of the page, he lifts up the end of the galley with his left hand, almost upright, and so discharges the galley of the page, by delivering it upright into his right hand.—Having done this, he puts the fingers of his left hand about the foot of the page, upon the ends of the lines on the right hand side, and his thumb on the left hand side, with the palms of his hands towards the face of the letter, and his other fingers bent under the foot of the page, with the face of the letter from him, and letting it rest on the inside of his fingers, under the right hand side of the page, he takes a page-paper into the palm of his left hand, and puts it against the bottom of the page, and turning his left hand outward, receives the page flat upon the paper on the palm of his hand; then with his right hand grasps the sides of the page and the paper, which turns up again above the bottom of the page, and sets it in a convenient place under his frame, placing it on the left hand with the foot towards him, that the other pages which are in like manner set down afterwards, may stand by it in regular succession, until he imposes them.

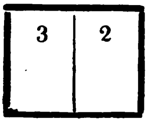
Having composed as many pages as make a whole sheet, half or less part of a sheet, of whatever size, they are taken from the frame, and carried to the imposing stone;* taking care to pu first page in its right position, with the signature to the left facing the compositor, according to the following schemes.

A Sheet in Folio.

Outer Form.

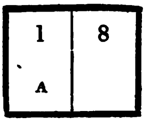


Inner Form.

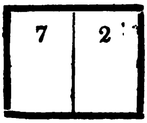


Two Sheets in Folio, Quired,† or lying one in another.

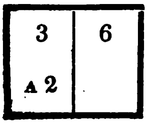
Outer Form of the Outer Sheet.



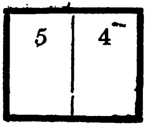
Inner Form of the Outer Sh



Outer Form of the Inner Sheet.

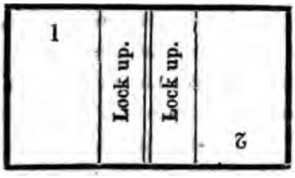


Inner Form of the Inner Sh



The mode of imposing Abstract Title Deeds of Estates.

Abstracts of title deeds of estates are printed with blanks at the backs, all the margin on the left side, and on single leaves, being stitched corner. The following is the method of imposing the form to save press- as well as the charge of the compositor.



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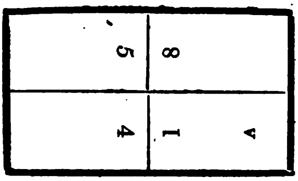
* Imposing comprehends not only the knowledge of placing the pages they may, after they are printed off, follow each other regularly, but als manner of dressing the furniture, and making the proper margin.

† Imposing in quires may be carried to any extent, by observing the fo ing rule :—suppose the work to consist of 32 pages, or 8 sheets, then an pages whose united numbers make 33, are to be imposed together; as 1, 19, 14—12, 21, &c.

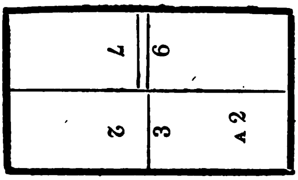
There must be less furniture in the backs of the inner sheet than the o to allow for stitching.

A Sheet of Common Quarto.

Outer Form.

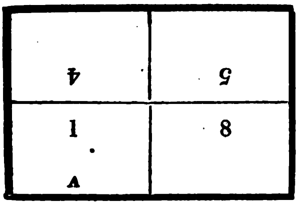


Inner Form.

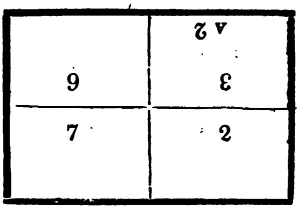


A Sheet in Broad Quarto.

Outer Form.

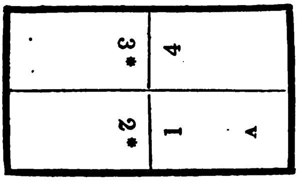


Inner Form.

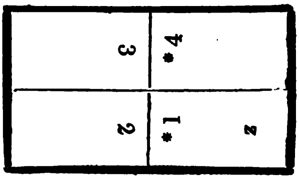


Two Half Sheets in Quarto, worked together.

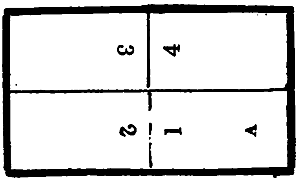
Outer Form.



Inner Form.



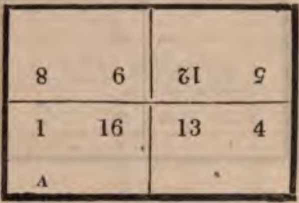
Half a Sheet of Common Quarto.



Schemes of Imposition.

A Sheet of Common Octavo.

Outer Form.



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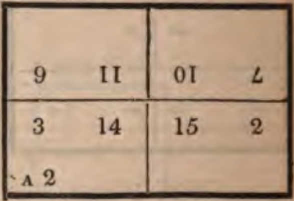
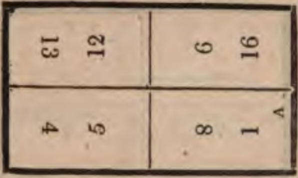
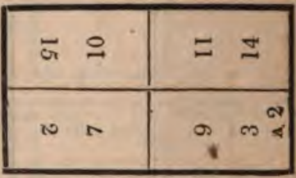


A Sheet of Broad Octavo

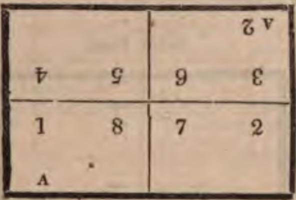
Outer Form.



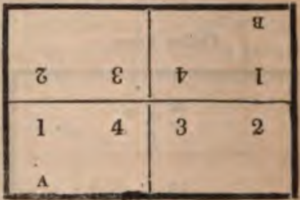
Inner Form.



Half a Sheet of Common Octavo.

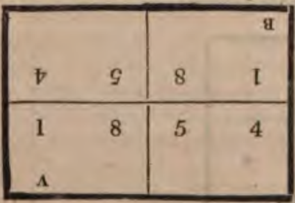


Two Quarters of a Common Octavo.

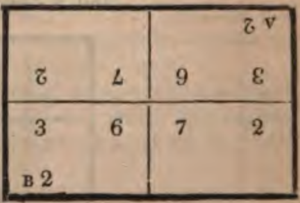


Two Half Sheets of Common Octavo, worked together.

Outer Form.

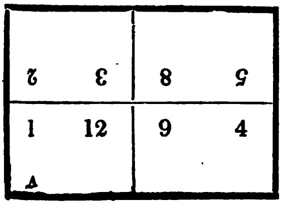


Inner Form.

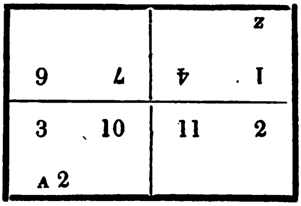


Sheet of Octavo with Two Signatures—12 concluding pages of a work, and 4 of other matter.

Outer Form.

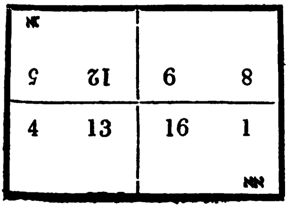


Inner Form.

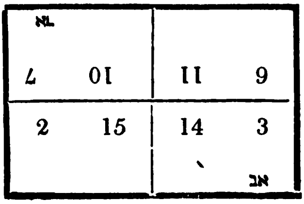


A Sheet in Octavo, of Hebrew Work.

Outer Form.

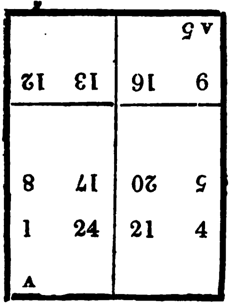


Inner Form.

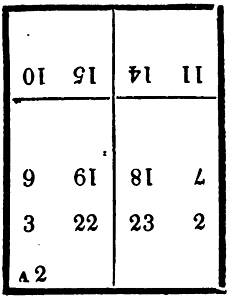


A Sheet of Twelves.

Outer Form.

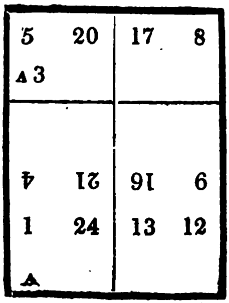


Inner Form.

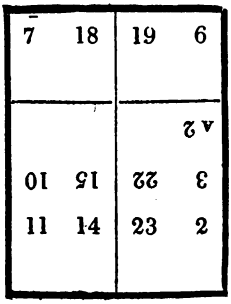


A Sheet of Twelves without cutting.

Outer Form.

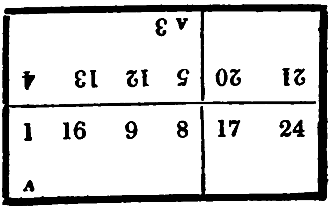


Inner Form.

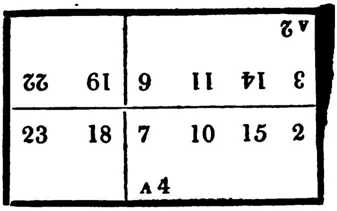


A Sheet of long Twelves.

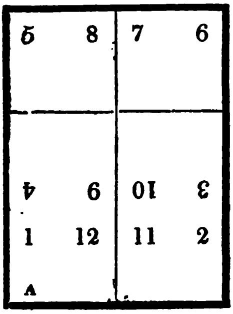
Outer Form.



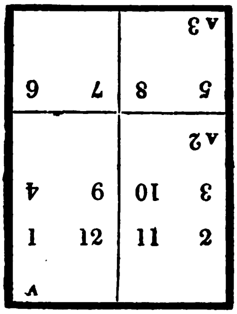
Inner Form.



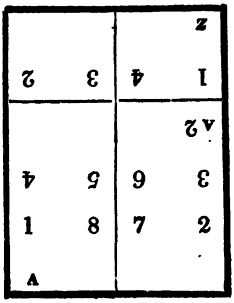
Half Sheet of Twelves without Cutting.



A Common Half Sheet of Twelves.



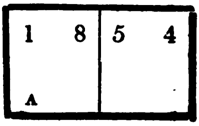
Half Sheet of Twelves with Two Signatures — being 8 concluding pages of a work, and 4 of other matter.



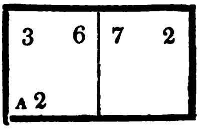
One-third, or 8 pages of a Sheet of Twelves.

To be imposed in the Off-cross.

Outer Form.



Inner Form.



A Sheet of Twelves, with Two Signatures.

Outer Form.

			B
20	21	24	17
			A 3
8	9	12	5
1	16	13	4
A			

Inner Form.

			B 2
18	23	22	19
6	11	10	7
3	14	15	2
A 2			

Two Half Sheets of Twelves worked together.

Outer Form.

6	7	6	7
4	9	4	9
1	12	1	12
A		Z	

Inner Form.

	Z 3		A 3
8	5	8	5
	Z 2		A 2
10	3	10	3
11	2	11	2

A Sheet in Sixteens, with One* Signature.

Outer Form.

4	29	28	5
13	20	21	12
16	17	24	9
1	32	25	8
A			

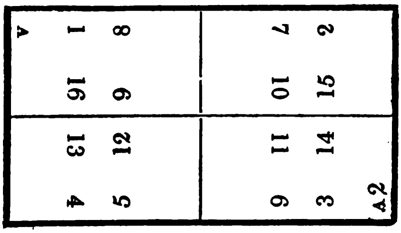
Inner Form.

			A 2
6	27	30	3
11	22	19	14
10	23	18	15
7	26	31	2

---

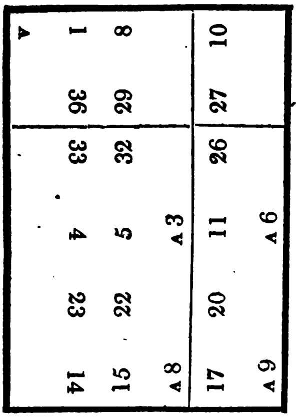
* A sheet in sixteens, with two signatures, is imposed as two sheets of common octavo, putting the first signature for the one half sheet where A stands above, and the first page of the other half sheet in the place where the fifth page is.

A Half Sheet in Sixteens.

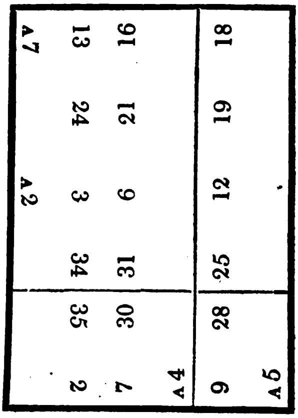


A Sheet of Eignteens, witn One Signature.

Outer Form.

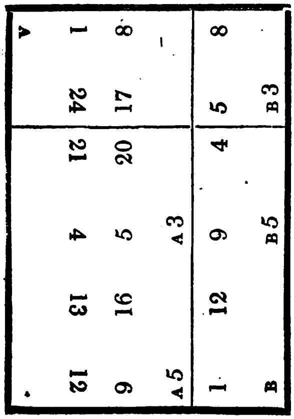


Inner Form.

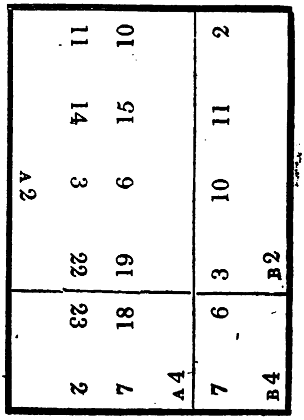


A Sheet of Eighteens, with Two Signatures.

Outer Form.

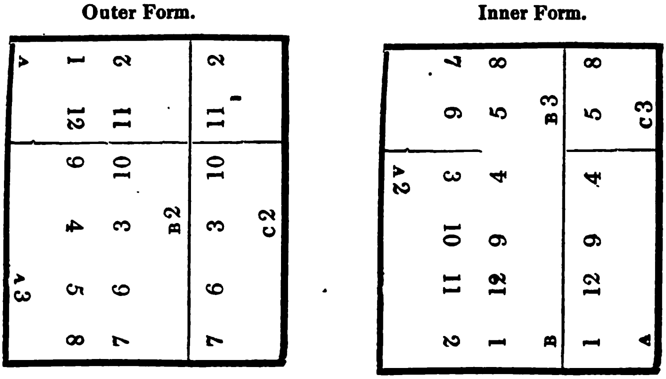


Inner Form.



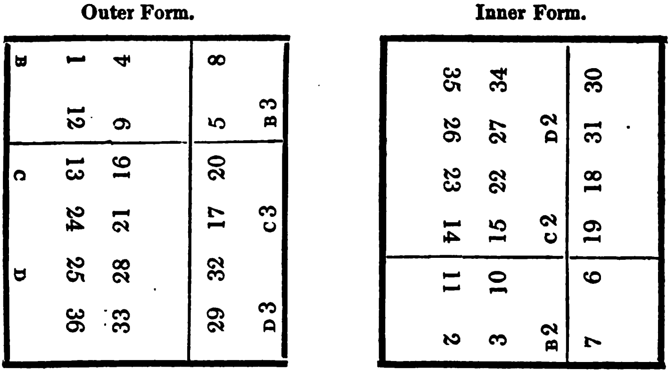
Schemes of Imposition.

A Sheet of Eighteens, with Three Signatures.



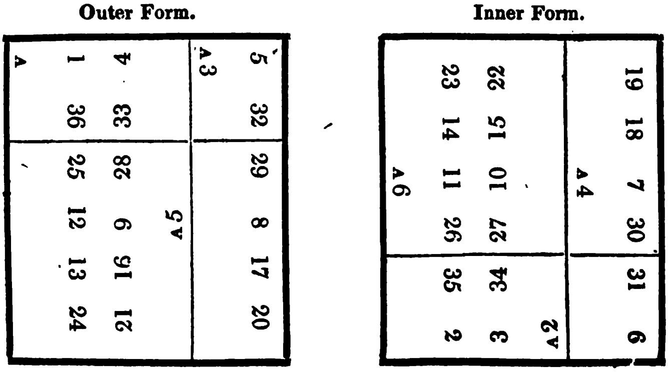
Outer Form. **Inner Form.**

Another Plan of a Sheet of Eighteens, with Three Signatures.



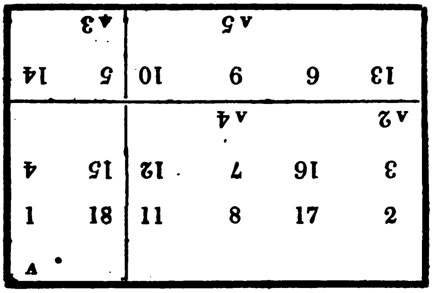
Outer Form. **Inner Form.**

A Sheet of Eighteens, to be folded up together.



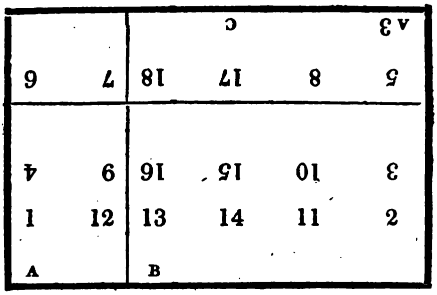
Outer Form. **Inner Form.**

A Half Sheet of Eighteens.

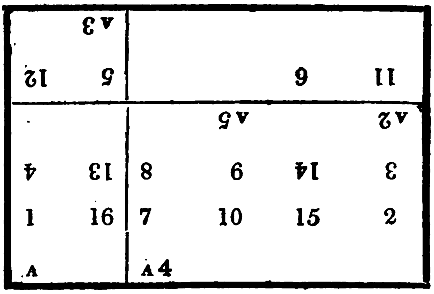


Note.—The white paper of this form being worked off, the four low pages in the middle must be transposed; viz. pages 8, 11, in the room o and pages 7, 12 in the room of 8, 11.

A Half Sheet of Eighteens, without transposing the Pages



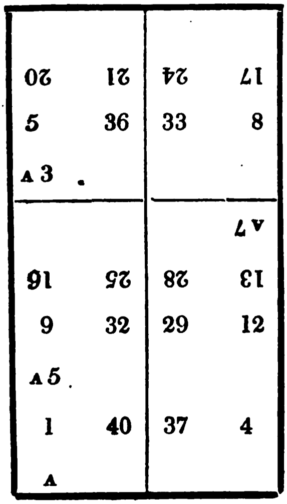
Sixteen Pages to a Half Sheet of Eighteens.



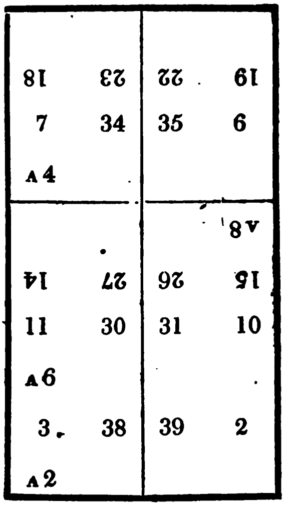
Note.—The white paper of this half sheet being worked off, the midd pages must be transposed; viz. pages 7, 10, in the room of 8, 9, and 8, 9, in the room of 7, 10.

A Sheet of Twenties.

Outer Form.

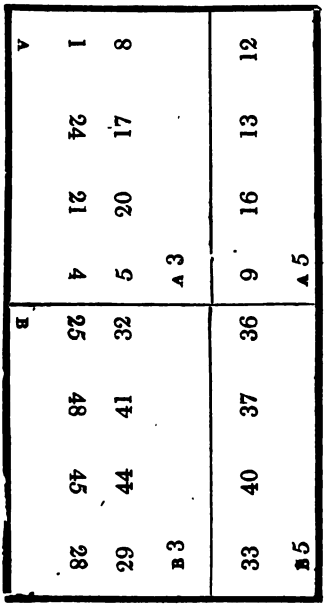


Inner Form.

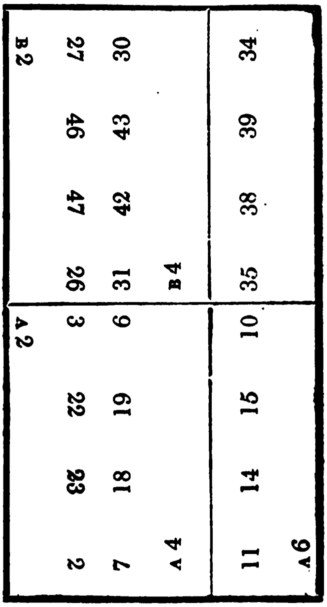


A Sheet of Twenty-fours, with Two Signatures.

Outer Form.



Inner Form.



A Common Half Sheet of Twenty-fours.

			A5				A6
12	13	16	9	10	15	14	11
			A3				A4
8	17	20	5	6	19	18	7
1	24	21	4	3	22	23	2
A				A2			

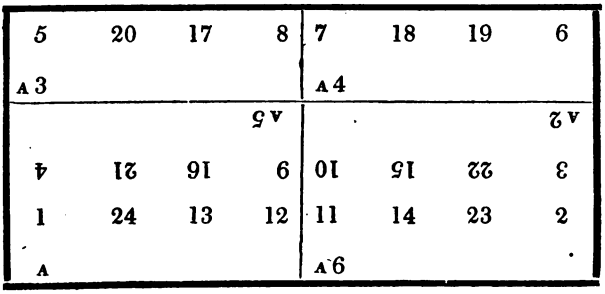
A Half Sheet of Twenty-fours, the Sixteen way.

			A2		A5
2	23	22	3	16	9
7	18	19	6	13	12
A4					
			A3		A6
8	17	20	5	14	11
1	24	21	4	15	10
A					

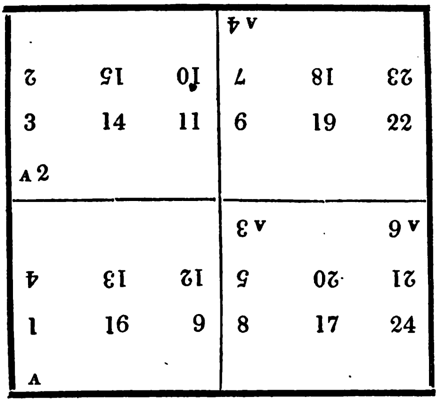
A Half Sheet of Twenty-fours, with Two Signatures.

			B2		B3		B
18	23	22	19	20	21	24	17
	A5		A3				A4
8	9	12	5	6	11	10	7
1	16	13	4	3	14	15	2
A				A2			

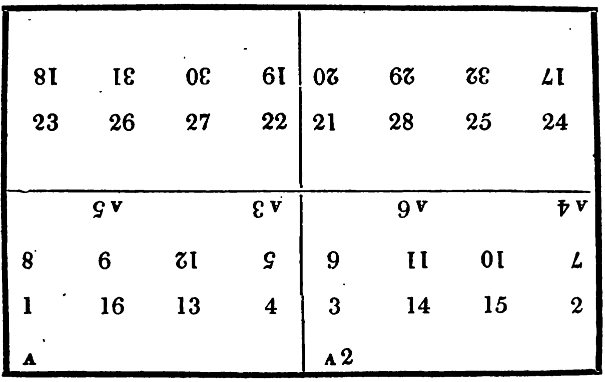
A Half Sheet of Twenty-fours, without Cutting.



A Half Sheet of Long Twenty-fours.



A Half Sheet of Thirty-twos.



Schemes of Imposition.

A Sheet of Thirty-twos.

Outer Form.

			A 3				A 3
4	61	36	29	28	37	60	5
13	52	45	20	21	44	53	12
A 7							
			A 9				A 5
16	49	48	17	24	41	56	9
1	64	33	32	25	40	57	8
A							

Inner Form.

							A 2
6	59	38	27	30	53	62	3
11	54	43	22	19	46	51	14
A 6							
							A 8
10	55	42	23	18	47	50	15
7	58	39	26	31	34	63	2
A 4							

A Half Sheet of Thirty-twos, with Two Signatures.

			B 2				B
18	31	30	19	20	29	32	17
23	26	27	22	21	28	25	24
B 4				B 3			
			A 3				A 4
8	9	12	5	6	11	10	7
1	16	13	4	3	14	15	2
A				A 2			

A Common Half Sheet of Thirty-twos.

			A 3				A 2
4	29	28	5	6	27	30	3
13	20	21	12	11	22	19	14
A 7				A 6			
			A 5				A 8
16	17	24	9	10	23	18	15
1	32	25	8	7	26	31	2
A				A 4			

A Sheet of Thirty-twos, with Four Signatures.

Outer Form.

			D 2				C
50	63	62	51	36	45	48	33
55	58	59	54	37	44	41	40
D 4				C 3			
			A 3				B 4
8	9	12	5	22	27	26	23
1	16	13	4	19	30	31	18
A				B 2			

Inner Form.

			C 2				D
34	47	46	35	52	61	64	49
39	42	43	38	53	60	57	56
C 4				D 3			
			B 3				A 4
24	25	28	21	6	11	10	7
17	32	29	20	3	14	15	2
B				A 2			

A Half Sheet of Thirty-sixes.

A	1	8		10		A 5	9	A 4	7	2	
	36	29		27			28		30	35	
	33	32		26			25		31	34	
	4	5	A 3	11	A 6		12		6	3	A 2
	23	22		20			19		21	24	
	14	15	A 8	17	A 9		18		16	13	A 7

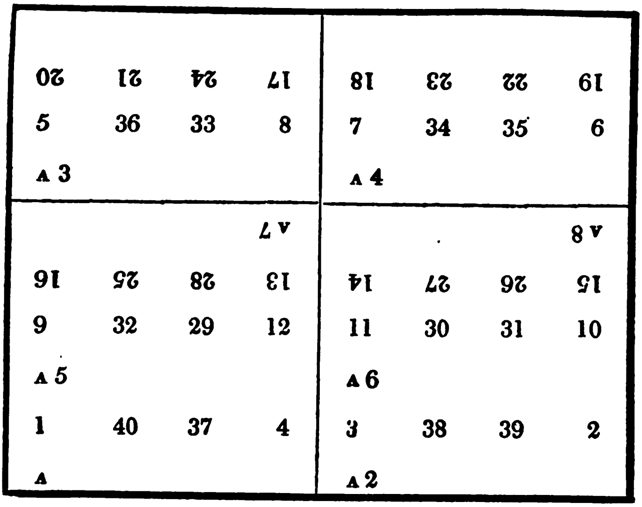
A Half Sheet of Thirty-sixes, with Two Signatures.

A	1	8		26		B	25	A 4	7	2	
	24	17		35			36		18	23	
	21	20		34			33		19	22	
	4	5	A 3	27	B 2		28		6	3	A 2
	15	14		32			31		13	16	
	10	11	A 6	29	B 3		30		12	9	A 5

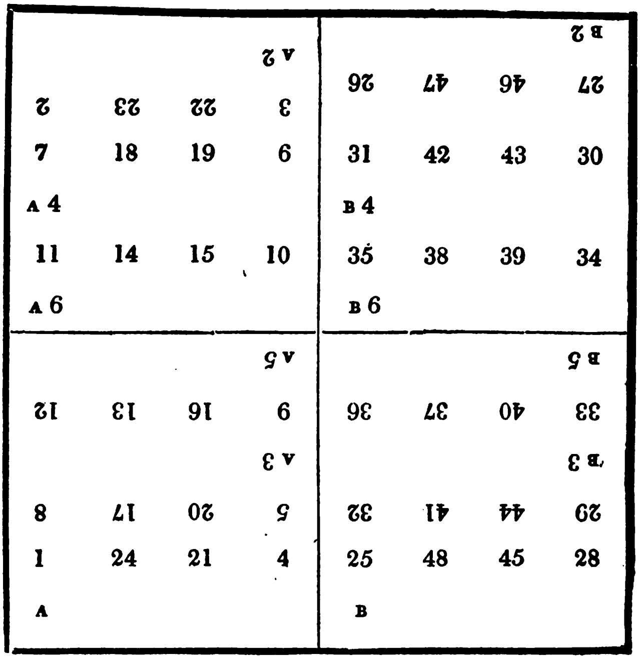
A Half Sheet of Thirty-sixes, without Cutting.

A	1	4			5	6		A 2	3	2	
	36	33			32	31			34	35	
	25	28			29	30			27	26	
	12	9	A 5		8	7	A 4		10	11	
	13	16			17	18			15	14	
	24	21			20	19			22	23	

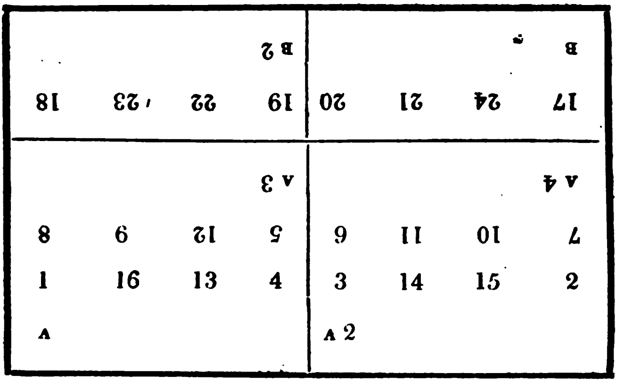
A Half Sheet of Forties.



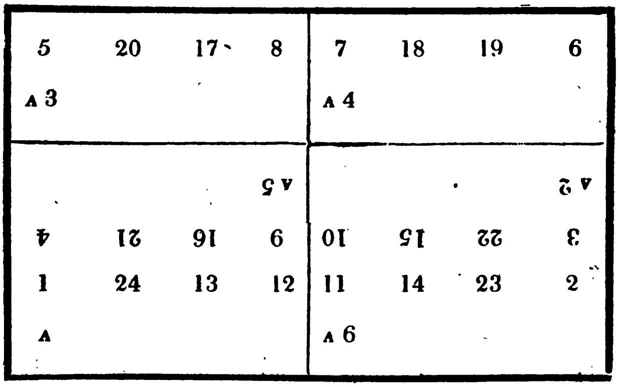
A Half Sheet of Forty-eights, with Two Signatures.



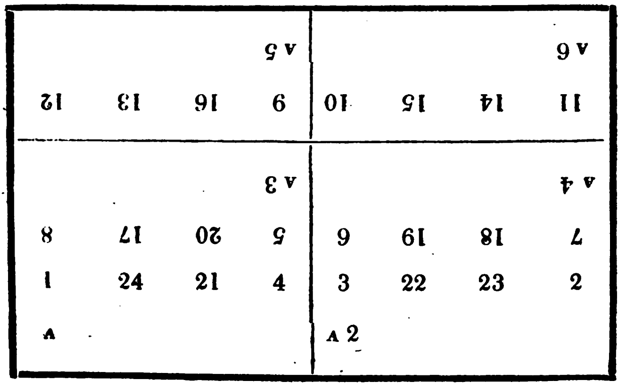
A Quarter Sheet of Forty-eights, with Two Signatures.



A Quarter Sheet of Forty-eights, without Cutting.



A common Quarter Sheet of Forty-eights



A Half Sheet of Forty-eights, with Three Signatures.

			C 2				C
34	47	46	35	36	45	48	33
39	42	43	38	37	44	41	40
				C 3			
			B 2				B
18	31	30	19	20	29	32	17
23	26	27	22	21	28	25	24
				B 3			
			A 3				
8	9	12	5	6	11	10	7
1	16	13	4	3	14	15	2
A				A 2			

A Quarter Sheet of Sixty-fours.

18	31	30	19	20	29	32	17
23	26	27	22	21	28	25	24
	A 5		A 3		A 6		A 4
8	9	12	5	6	11	10	7
1	16	13	4	3	14	15	2
A		A 7		A 2		A 8	

A Common Quarter Sheet of Sixty-fours.

			A 3				A 2
4	29	28	5	6	27	30	3
13	20	21	12	11	22	19	14
A 7				A 6			
			A 5				A 8
16	17	24	9	10	23	18	15
1	32	25	8	7	26	31	2
A				A 4			

A Half Sheet of Sixty-fours.

							A 4
2	63	34	31	26	39	58	7
15	50	47	18	23	42	55	10
A 8							
							A 6
14	51	46	19	22	43	54	11
3	62	35	30	27	38	59	6
A 2							
							A 3
4	61	36	29	28	37	60	5
13	52	45	20	21	44	53	12
A 7							
			A 9				A 5
16	49	48	17	24	41	56	9
1	64	33	32	25	40	57	8
A							

A Half Sheet of Seventy-twos, with Three Signatures.

			A 2		A 5						A
2	23	22	3	16	9	10	15	4	21	24	1
7	18	19	6	13	12	11	14	5	20	17	8
A 4						A 6		A 3			
			B 3		B 6						B 4
32	41	44	29	38	35	36	37	30	43	42	31
25	48	45	28	39	34	33	40	27	46	47	26
B						B 5		B 2			
			C 3		C 6						C 4
56	65	68	53	62	59	60	61	54	67	66	55
49	72	69	52	63	58	57	64	51	70	71	50
C						C 5		C 2			

Schemes of Imposition.

A Half Sheet of Ninety-sixes, with Six Signatures.

			E 2				F				F 2				E
66	79	78	67	84	93	96	81	82	95	94	83	68	77	80	65
71	74	75	70	85	92	89	88	87	90	91	86	69	76	73	72
E 4				F 3				F 4				E 3			
			D 2				C				C 2				D
50	63	62	51	36	45	48	33	34	47	46	35	52	61	64	49
55	58	59	54	37	44	41	40	39	42	43	38	53	60	57	56
D 4				C 3				C 4				D 3			
			A 3				B 4				B 3				A 4
8	6	12	5	22	27	26	23	24	25	28	21	9	11	10	7
1	16	13	4	19	30	31	18	17	32	29	20	3	14	15	2
A				B 2				B				A 2			

A Half Sheet of One Hundred and Twenty-eights.

			H 2				G				G 2				H
114	127	126	115	100	109	112	97	98	111	110	99	116	125	128	113
119	122	123	118	101	108	105	104	103	106	107	102	117	124	121	120
H 4				G 3				G 4				H 3			
			E 2				F				F 2				E
66	79	78	67	84	93	96	81	82	95	94	83	68	77	80	65
71	74	75	70	85	92	89	88	87	90	91	86	69	76	73	72
E 4				F 3				F 4				E 3			
			D 2				C				C 2				D
50	63	62	51	36	45	48	33	34	47	46	35	52	61	64	49
55	58	59	54	37	44	41	40	39	42	43	38	53	60	57	56
D 4				C 3				C 4				D 3			
			A 3				B 4				B 3				A 4
8	9	12	5	22	27	26	23	24	25	28	21	6	11	10	7
1	16	13	4	19	30	31	18	17	32	29	20	3	14	15	2

The preceding schemes will be found to contain every necessary imposition, consisting of folios, quartos, octavos, twelves, sixteens, eighteens, &c. together with many irregular sizes, *viz.* twenties, thirty-sixes, forties, forty-eights, sixty-fours, seventy-twos, ninety-sixes, and one hundred and twenty-eights; these, and many more irregular sizes may be made, with a view to shew the possibility of folding a sheet of paper into so many various forms. We have also given a plan for imposing a half sheet of eighteens without transposing the pages on the press, which will be found extremely useful, as works in that size are now constantly printing. Much time will also be saved in the warehouse-work, for it will now only be necessary to cut the sheet through in the middle, in the same manner as a half sheet of octavo.

Sixteens, twenty-fours, and thirty-twos, are but octavos and twelves doubled, or twice doubled, and imposed in half sheets. For example, the sixteens are two octavos imposed on each side the short cross, and a thirty-two is four octavos imposed in each quarter of the chase.

In half sheets, all the pages belonging to the white paper and reiteration are imposed in one chase. When a sheet of paper is thus printed on both sides with the same form, it is cut in two in the short cross, if quarto or octavo, and in the short and long cross if twelves, and folded as octavo or twelves.

When a compositor proceeds to impose, he takes up the pages from under his frame, set by on papers in regular succession, and grasping the edges of the paper tight, brings it thus to the imposing stone; he then slides the page from off the paper, drawing it at the same time from under the page. He thus lays down all the pages of the sheet in their right order; but before the chase and furniture are put round them, he will be perfectly satisfied that they are laid down correct, which may be easily ascertained in regular matter by observing whether the uneven outer pages have their proper signatures; and whether the number of an outside page, and the number of the page next to it, amount to one more than there are pages in a sheet or half sheet of the work. Thus, for example, in folio, one and four make five; in quarto, one and eight make nine; in octavo, one and sixteen make seventeen. In this manner we may examine every two pages in all other sizes, whether their joint number exceeds the number of pages in a sheet by one; which, if it does, is a proof that the pages are in their right places.

Being sure that the pages are laid down right, we proceed to dress the chases, which we will suppose to be for a sheet of octavo. Having procured a good pair of chases, fellows, in circumference as in other respects, and having laid them over the pages for the two forms, a sheet of the paper should be procured on which the work is to be done, and such gutter-sticks placed betwixt the pages, and reglets along the sides of the two crosses, as will allow a proper margin after the book is bound. Having dressed the inside of the pages, side and foot sticks are put round the outside. When properly secured by furniture, each quarter must be untied, the inner page first, and then the outer, driving at the same time the letter towards the crosses, and using every other means to prevent it from hanging or leaning; for which purpose, and to keep it from other accidents, they must be immediately secured by quoins.

By observing a proper method in cutting up new furniture, it may again be serviceable for other works, even though the size of the page may differ, provided it agrees with the margin of the paper. The gutters should be cut two or three lines longer than the page.

The pages of a sheet or half sheet being now dressed, the next business is to make the margin, or to try whether the furniture is so proportioned as that each page may have a proper and equal margin at the sides as well as at the head and foot.

The common mode of making margin is as follows. Having cut the furniture, for octavo, a sheet of the paper on which the work is to be printed is folded to that size; it is then opened to the size of a leaf in quarto, and one extremity of it laid against the folio side of the fifteenth page, if it be an inner form, or against the folio side of the thirteenth page, if it be an outer form, to observe whether the opposite extremity of the paper, thus folded in quarto, reaches to and fairly covers the third, or the first page; if it does, it proves the margin of that quarter to be right, and that the others may be adjusted to it. Having in this manner made the margin to the breadth of the paper, it is then proportioned to the length, by trying whether the depth of it fairly covers the bottom line of the fifteenth or the thirteenth page, when the upper end of it is laid against the back of the running title of the tenth or of the twelfth page: if it does, it proves that the margin to the length of the page is right. Care should always be taken, that the gutter-sticks are of a proper breadth, which may be tried by holding one end of the paper, folded in quarto, to the centre of the groove in the short cross, to observe whether the fold for octavo falls in the middle of a gutter-stick; which, if it does, proves that the gutter-stick is of a proper size. In this manner we may also try the margin of twelves and other sizes; for having folded with exactness a sheet of the right paper to the work, one quarter of a chase may be first dressed, and the margin to it made before we go further; for if the foldings fall in the middle of the respective parts of the furniture, it proves that the margin is right throughout.

The chases being now dressed, and the proper margin made, nothing remains but quoining and locking up the forms. But before this is done, slips of scaleboards must be cut, of which one or two are put along both sides of the long as well as of the short cross; not for the purpose of enlarging the margin, but to supply the inequality of the crosses, and to assist the pressman in making register.

All that has been said on the subject of making margin, relates to the imposing the first sheet of a work; for if that is properly effected, a second, or more sheets, may be completed with little trouble; for then the compositor may impose from wrought-off forms, where there is nothing else to do but to put the chase and furniture about the pages, in the same manner as he takes them off the form he is stripping.

In order to be accurate in setting the folios of the respective pages, according to their regular succession, we have arranged the following table.

A Table of Signatures and Folios.

A Table of Signatures and Folios.

Extended to Four Alphabets.

No. Sheets.	Signature.	Folio.	Quarto.	Octavo, Sheets.	Octavo, Half Sheets.	Twelves, Sheets.	Twelves, Half Sheets.	Eighteens.	
	A	0	0	0	0	0	0		
1	B	1	1	1	1	1	1	B	1
2	C	5	9	17	9	25	13	C	37
3	D	9	17	33	17	49	25	D	73
4	E	13	25	49	25	73	37	E	109
5	F	17	33	65	33	97	49	F	145
6	G	21	41	81	41	121	61	G	181
7	H	25	49	97	49	145	73	H	217
8	I	29	57	113	57	169	85	I	253
9	K	33	65	129	65	193	97	K	289
10	L	37	73	145	73	217	109	L	325
11	M	41	81	161	81	241	121	M	361
12	N	45	89	177	89	265	133	N	397
13	O	49	97	193	97	289	145	O	433
14	P	53	105	209	105	313	157	P	469
15	Q	57	113	225	113	337	169	Q	505
16	R	61	121	241	121	361	181	R	541
17	S	65	129	257	129	385	193	S	577
18	T	69	137	273	137	409	205	T	613
19	U	73	145	289	145	433	217	U	649
20	X	77	153	305	153	457	229	X	685
21	Y	81	161	321	161	481	241	Y	721
22	Z	85	169	337	169	505	253	Z	757
23	2 A	89	177	353	177	529	265		
24	B	93	185	369	185	553	277		
25	C	97	193	385	193	577	289		
26	D	101	201	401	201	601	301		
27	E	105	209	417	209	625	313		
28	F	109	217	433	217	649	325		
29	G	113	225	449	225	673	337		
30	H	117	233	465	233	697	349		
31	I	121	241	481	241	721	361		
32	K	125	249	497	249	745	373		
33	L	129	257	513	257	769	385		
34	M	133	265	529	265	793	397		
35	N	137	273	545	273	817	409		
36	O	141	281	561	281	841	421		
37	P	145	289	577	289	865	433		
38	Q	149	297	593	297	889	445		
39	R	153	305	609	305	913	457		
40	S	157	313	625	313	937	469		
41	T	161	321	641	321	961	481		
42	U	165	329	657	329	985	493		
43	X	169	337	673	337	1009	505		
44	Y	173	345	689	345	1033	517		
45	Z	177	353	705	353	1057	529		

A Table of Signatures and Folios.

A Table of Signatures and Folios.

Continued.

No. Sheets.	Signature.	Folio.	Quarto.	Octavo, Sheets.	Octavo, Half Sheets.	Twelves, Sheets.	Twelves, Half Sheets.
46	3 A	181	361	721	361	1081	541
47	B	185	369	737	369	1105	553
48	C	189	377	753	377	1129	565
49	D	193	385	769	385	1153	577
50	E	197	393	785	393	1177	589
51	F	201	401	801	401	1201	601
52	G	205	409	817	409	1225	613
53	H	209	417	833	417	1249	625
54	I	213	425	849	425	1273	637
55	K	217	433	865	433	1297	649
56	L	221	441	881	441	1321	661
57	M	225	449	897	449	1345	673
58	N	229	457	913	457	1369	685
59	O	233	465	929	465	1393	697
60	P	237	473	945	473	1417	709
61	Q	241	481	961	481	1441	721
62	R	245	489	977	489	1465	733
63	S	249	497	993	497	1489	745
64	T	253	505	1009	505	1513	757
65	U	257	513	1025	513	1537	769
66	X	261	521	1041	521	1561	781
67	Y	265	529	1057	529	1585	793
68	Z	269	537	1073	537	1609	805
69	4 A	273	545	1089	545	1633	817
70	B	277	553	1105	553	1657	829
71	C	281	561	1121	561	1681	841
72	D	285	569	1137	569	1705	853
73	E	289	577	1153	577	1729	865
74	F	293	585	1169	585	1753	877
75	G	297	593	1185	593	1777	889
76	H	301	601	1201	601	1801	901
77	I	305	609	1217	609	1825	913
78	K	309	617	1233	617	1849	925
79	L	313	625	1249	625	1873	937
80	M	317	633	1265	633	1897	949
81	N	321	641	1281	641	1921	961
82	O	325	649	1297	649	1945	973
83	P	329	657	1313	657	1969	985
84	Q	333	665	1329	665	1993	997
85	R	337	673	1345	673	2017	1009
86	S	341	681	1361	681	2041	1021
87	T	345	689	1377	689	2065	1033
88	U	349	697	1393	697	2089	1045
89	X	353	705	1409	705	2113	1057
90	Y	357	713	1425	713	2137	1069
91	Z	361	721	1441	721	2161	1081

The running titles, with the right folios to them, being put to the pages, the compositor proceeds to lock up his forms; first carefully examining whether the pages of each quarter are of an exact length, for the difference even of a lead will cause them to hang. He ascertains their exactness by placing the ball of each thumb against the centre of the foot-stick, raising it a little with the pressnre, and if the ends of both pages rise equal with the stick, it is a proof they will not bind; he then fits quoins betwixt the side and foot-stick of each quarter, and the chase, till the whole form may be raised. And though locking up a form may be thought a trifling operation, it demands his attention nevertheless in several instances. When he has pushed the quoins as far as possible with his fingers, they may be driven along the foot-sticks with the mallet and shooting stick, and then along the side-sticks, taking care to use an equal force in his strokes, and to drive the quoins far enough up the shoulders of the side and foot-sticks, that the letter may neither belly out one way, nor hang in the other; and as to the lower quoins, they ought likewise to be driven to a station where they may do the office of keeping the letter straight and even. And here we venture to disapprove the custom of slanting quoins on both sides, and planing their edges and corners off, whereby all the bevelled-off parts are rendered ineffectual to do the office of a quoin or wedge; for the slanted side of a quoin running against the square side of the chase, must needs carry a cavity with it, and consequently it cannot bind with equal force in every part; whereas, it would deserve the name of an improvement, were quoins slanted on one side only, and their gradation and variety of sizes preferred to superficial neatness, which answers no other end than that of making the bevelled-off parts of a quoin useless, and incapable of doing the same execution with a plain one, that binds and bears alike in all its parts. As to the edges that are planed off across the two ends of a quoin, the want of them causes the shooting stick to fly off the quoin almost at every hard stroke of the mallet, because the quoin end of the shooting stick is rounded off; for which reason we should choose to have that end made of a forked, or else of a square form, to be of greater service in unlocking a form.

It often occurs, that the quoins, from having been locked up wet, stick so tight to the furniture as to render it troublesome to unlock them; in such cases the inconvenience is remedied by driving the quoin up instead of down, which immediately loosens it, and it unlocks with ease.

The form, or forms, being now locked up, and become portable, he delivers them to the pressmen to pull a proof of them. But here we must notice a corruption that prevails with some pressmen, in turning the term *first* proof into that of *foul* proof, and often pull the proofs accordingly; whereas even a slight knowledge of printing is sufficient to judge that a proof sheet ought to be pulled as clean and as neat as any sheet in a heap that is worked off. Hence it is a rule with careful pressmen, not to give proofs a high colour, nor to use very wet paper for them, but instead of these easements to give them a long and slow pull, that the matter may come off clean and fair, so that every letter may appear full and plain; after which the forms are rubbed over with a wet ley-brush; then carefully taken off the press, and the proof and forms delivered to the compositor's further care.

It has ever been the pursuit of eminent printers to aim at accuracy, by their particular care that the effects of their profession should appear without faults and errors, not only with respect to wrong letters and false spelling, but chiefly in regard to their correcting and illustrating such words and passages as are not fully explained or expressed, or are obscurely written in the copy.

What is chiefly required of a corrector, besides detecting literal faults, is to spell and point after the prevailing method and genius of each particular language: but these being two points that never will be reconciled, but always afford employment for verbal critics, every corrector ought to fix upon a method to spell doubtful words and compounds the same way. And that the compositors may become acquainted with and accustomed to his way of spelling, the best expedient will be, to draw out by degrees a catalogue of such doubtful words and compounds.

As it is necessary that correctors should understand various languages, so it is requisite that they should be acquainted with the nature of printing, else they will be apt to expose themselves by erroneous corrections. It is for this reason that correctors are chosen from among compositors that are thought capable of that office, and who know how not only to correct literal faults, but can also discern where improprieties in workmanship are used; which cannot be expected in gentlemen who have not a sufficient knowledge of printing; and it would be very ungenerous in a compositor to swerve from the common rules in practice, because the corrector is not printer enough to find fault with it.

Familiar illustrations of the mode of Correcting a Proof.

To strike out superfluous words in a sentence a line is drawn through it; and should it afterwards be found advisable to retain the word, dots are placed beneath, and *stet* written in the margin. An illustration is also afforded in the following line of the mode of marking those words, the distance between which is to be diminished.

The men ~~were~~ ⌊good — *stet*./ ⁀

To cause words to be changed from one character to another.

From roman type into italic — was — *Ital*./
From italic into roman — *was* — *rom*./
From italic or roman into small capitals — was — *Sm.Caps*./
From italic or roman into large capitals — was — *Caps*./

To introduce the proper stops in a sentence.

The punctuation may be corrected by employing either of the annexed corrections in the margin. ⦂ ⦂ ⊙

To transpose a word *tr* is written in the margin.

The people good were — *tr*

To strike out superfluous letters or words the pen is drawn through them, and the annexed characters introduced in the margin. δ// δ

To cause a letter that is turned to be placed aright, a line is drawn through it and this character introduced in the margin. 9/

To make two words into one.

Any‿thing you please. — ‿

The annexed marks denote the omission of an apostrophe, and also the manner in which a letter of a different fount should be noticed, when improperly used. ʼ/ *wf*

Where a word is omitted.

We went into the‸yesterday. — *city*/

When it is considered how much the credit of our art, and the general interests of literature depend on the grammatical accuracy and typographical correctness of our labours, it will readily appear that a careful and steady *Reader* must be indispensable in every printing-office. We will therefore detail, at some length, the business and qualifications requisite to form such a reader, or corrector of the press, as can alone save the typographic art from degenerating into one of those ordinary occupations that require only the mechanical operation of the fingers, to form a perfect and complete workman.

It is always desirable that a reader should have been previously brought up to the business of a compositor. By his practical acquaintance with the mechanical departments of the business, he will be better able to detect those manifold errata which, unperceived by the mere man of learning and science, lie lurking, as it were, in a thousand different forms, in every sheet; and, if overlooked, give an air of carelessness and inattention to our labours, that must always offend the just taste and professional discernment of all true lovers of correct and beautiful typography.

Some of the principal imperfections, which are most easily observed by the man of practical knowledge in the art of printing, are the following: viz. imperfect and wrong-founted letters; inverted letters, particularly the lower-case s, the n, and the u; awkward and irregular spacing; uneven pages or columns; a false disposition of the reference marks; crookedness in words and lines; bad making-up of matter; erroneous indention, &c. These minutiæ, which are rather imperfections of workmanship, than literal errors, are apt to be overlooked and neglected by those readers who have no idea of the great liability there is, even with the most careful compositor, to fall into them—nay, the almost absolute impossibility of wholly avoiding them.

Although, on these accounts, it is certainly desirable that every reader should have been himself a compositor, we do not mean to infer, that even the imperfections we have just enumerated may not be observed by a reader who never was practically acquainted with the mechanical part of our business. Long and frequent habits of reading proof-sheets for the press, a quick eye, and a steady mind, will certainly enable any one, who is not a compositor, to detect those lesser deviations from correctness, which the inexperienced and the careless are apt to overlook. But while these habits are acquiring, without which no person can be safely trusted to read a sheet for press, the labours of the printer are liable to go forth into the world in a manner that will reflect dishonour on the employed, and give offence to the employer. This observation will apply even to those readers who have previously been compositors. No proof-sheet, therefore, ought to be put to press, until it has been carefully read and revised by an *experienced* reader.

There is a mistake very common among printers, that no standard can be laid down with respect to punctuation. It is true, authors differ much in their methods of punctuation; but this arises not from any want of a true system, but for want of due adherence to the right system. This is too often esteemed an attention beneath their notice; they therefore rely on the skill and experience of their printers in this respect. This being the case, the duty of punctuation is often made to devolve on the corrector; and what has been disregarded as a matter of little consequence, by the author, becomes an important part of the corrector's business. Let him discharge this duty with propriety and uniformity.

Having said thus much concerning the qualifications of a reader, we proced to point out the proper application of those attainments, and to shew the process which every proof-sheet ought to go through before it is in a state of correctness proper to go to press.

While the pressman is engaged in pulling a proof, the compositors on the work ought to be collecting and arranging the copy, that both may be put into the hands of the reader for the purpose of clearing it from the most glaring literals, always having the copy lying upon his desk or table, ready to cast his eye upon in case of doubt or misunderstanding. This process, which is a kind of slight comparison of the copy and the proof, having been carefully and deliberately gone through, if the proof be not exceedingly foul indeed, (in which case it is best to have it corrected before he proceeds any further), the reader should then call his reading-boy, to read the copy aloud to him. He should be able to read with ease and distinctness any copy put into his hands; and he should be instructed not to read too fast, but to pay as much attention to what he is engaged in, as if he were reading for his own amusement or instruction. The eye of the reader should not follow, but rather go before the voice of his reading-boy; for by a habit of this nature a reader will, as it were, anticipate every single word in his copy; and whenever any word or sentence happen to have been omitted in the proof, his attention will the more sensibly be arrested by it, when he hears it pronounced by his reading-boy. Great care, however, ought to be paid, lest the eye of the reader should go too far before the words of his reading-boy. For as he will be apt to be attending to the meaning of his author, he will read words in the proof which actually do not appear there, and the very accuracy of the reading-boy will but tend to confirm him in the mistake.

After having read through the proof, with the reading-boy, he should examine the signatures, catch-words, head-lines, titles and folios of every page, and mark, with accuracy, the *primer*, or connexion of the ensuing sheet. In marking the primer, care ought always to be taken, that not only the incipient word of the next sheet be marked, but also the number of the volume or part, (when a work consists of more volumes or parts than one) and the succeeding folio and signature. When all or any of these are neglected, if the compositor happen not to have set beyond the current sheet, which sometimes happens, or if he have not made up the first page of the next sheet, mistakes are in danger of being fallen into by the compositor; and it is obvious enough that it is the interest of every reader to do whatever lies in his power to prevent a compositor from creating him any labour that can possibly be avoided.

When a proof has been thus compared and read by copy it should be forwarded to the compositor, to be corrected in the metal; but before this is done, an entry should be made of it in a book for that purpose, agreeable to the following plan.

Date of first reading.	Names of Works.	Signatures.	Date when read for press.

By thus keeping an account of the different readings of the proofs, the reader will be enabled at all times to state to the master or overseer the progress of the respective works in hand.

When the proof has been corrected in the metal a *revise* should be immediately pulled, which, together with the first proof, should be put into the hands of the reader, whose next business is to collate the corrected sheet with the one he had before read, to see that all the errata are properly corrected. We believe it is the practice of some readers not to revise their proofs, but immediately to proceed to read them a third time, for press. This is a dangerous mode of procedure, and ought never to be adopted. It is no small matter to clear a proof of all its imperfections: an error, once found, is therefore of too great importance to be passed unobserved; but this every reader is liable to, unless he revise every page of his proof with the utmost care and attention: for few foul compositors are able, in the ordinary course of their labour, to correct every error marked in the first proof. In revising a proof-sheet, particular care must be taken, that none of the fresh errors escape which compositors often make in the course of correcting the original ones. To avoid this, the reader ought not only to pay attention to the particular word which has been corrected, but always to read over, with care, the whole of the line in which that word is to be found. This is particularly necessary in cases where it has been requisite for the compositor to alter irregular or slovenly spacing; for in raising the line in the metal for that purpose, there is very great danger lest some word or letter should have fallen out, or some space have been put into a wrong place.

In all cases where the first proof has been found to be very foul, it is necessary to read the whole sheet a second time by copy. It is almost morally impossible that a foul proof should be cleared of all its errors, or that every omitted word should be noticed in the first reading. And when also it is considered, that in cases of *outs* or *doubles*, a compositor is as liable to make errors in the insertion of the one and improper connexion in the removal of the other as he was in the original composition and making up of the sheet, the propriety of reading foul proofs a second time by copy will be obvious to every one.

When a proof-sheet has undergone the regular process we have here laid down, the next thing is to forward it, along with the copy, to the author or editor of the work, or to such other literary person whom the publisher has appointed for that purpose. But, in order to prevent disputes in case of delay, no proof should be sent to an author or editor without first writing on it the date of the month on which it was forwarded to him. A memorandum should also be made of the return of the proof-sheet from the author or editor.

It ought always to be remembered, that that part of the copy which contains the connecting matter of the ensuing sheet, should be carefully transcribed or read off, a proof of that matter having been pulled for the purpose.

It may not be improper, in this place, just to take notice of the great danger to the correctness of a work which arises from the practice, too common with some authors, of keeping their proof-sheets too long in their hands, before they are returned to the printer. As the pages in the metal get dry, the adhesion of the types to each other is weakened, and the swell or extension of the quoins and furniture, which the moisture had occasioned, is removed; so that there is great danger of letters falling out, when a form is long kept from the press. Nor is the danger which is hereby occasioned to correctness the only inconvenience: the impatience of authors to see their works in a fit state for publication is almost proverbial. The pleasure arising from beholding, as it were, the "form and texture" of one's thoughts, is a sensation much easier felt than described. That authors, therefore, may partake of this pleasure in a speedy and regular succession, they should make a point of forwarding their proof-sheets to the printer as quick as possible, not only that they may the sooner be got ready for press, but that the work may proceed in a regular manner.

Authors are very apt to make alterations, and to correct and amend the style or arguments of their works when they first see them in print. This is certainly the worst time for this labour, as it is necessarily attended with an expense which in large works will imperceptibly swell to a serious sum; when, however, this method of alteration is adopted by an author, the reader must always be careful to read the whole sheet over once more with very great attention, before it is finally put to press.

A proof-sheet having undergone this routine of purgation, may be supposed to be as free from errata as the nature of the thing will admit, and the word " Press" may be written at the top of the first page.

These are the qualifications of a reader; this is the business of one employed as a corrector of the press. It is an arduous employment —an employment of no small responsibility, and which ought never to be wholly entrusted to the intemperate, the thoughtless, the illiterate, or the inexperienced.*

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* See *Stower's Printer's Grammar*, to which work the Editor is indebted for much useful information.

We may now describe the rules generally observed in companionships.

The disputes which frequently arise in printing-offices upon trifling as well as intricate points, can only be settled by a reference to the general custom and usage of the trade. These misunderstandings, which annoy and retard business, often take place in companionships consisting of three or four compositors; it is therefore highly desirable that the generally received rules and regulations on this subject should be explicitly and clearly laid down for the future comfort and government of the compositor.

In taking copy, if a re-print, and the compositor is desired to follow page for page, each sheet, as it is given out, should be divided into as many parts as the companionship may consist of, and the choice of each part, if it materially varies, should be thrown for. During the absence of either in the companionship, if he be likely soon to return, some one should throw for him, on condition that he will be able to get through this fresh taking, with what remains of the last, so as not to impede the imposition of the sheet.

Another method may be adopted, *viz.* for each person to agree to receive regularly of the different takings a certain number of pages; but if this plan be followed, the bulk of the copy must not be subject to the inspection of the companionship, but kept by the overseer, and dealt out by him as it is wanted, or it will inevitably produce contention; for the compositor likely to be first out of copy, if he has free access to that which remains unfinished, will observe whether the next taking be *fat* or *lean*—if the latter, he will hold back and loiter away his time, in order to avoid it, and thus materially delay the work. On the other hand, if this taking appear to be advantageous, and there should happen to be two or three of the companionship out of copy at the same time, a sort of scramble will take place who shall have it, which will end in dispute and confusion; on no account, therefore, should the copy be open to examination, unless for the purpose of ascertaining the charge per sheet.

With manuscript copy it will be better to take one from the other in such a manner as not in the smallest degree to delay the imposition, or block up the letter; that is, that no compositor may retain the making up too long by holding too large a taking of copy. Compositors are apt to grasp at a large portion of copy, with the view of advantage in the making up, though nine times in ten it will, as before observed, operate as a loss to them, by their eventually standing still for want of letter. If by mistake too much copy has been taken, the compositor should hand a part of it to the person next in the making up, to set up to himself.

If the parts of the copy should be particularly advantageous or otherwise, each of the companionship should throw for the chance of it: the person to whom it may fall, if he have copy in hand, must turn that copy over to him who is about to receive more copy; but for trifling variations from the general state of the copy, it cannot be worth the loss of time necessary to contest it; though it frequently happens that a litigious man will argue half an hour on a point that would not have made five minutes difference to him in the course of his day's work.

If one of the companionship absent himself from business, and thereby delay the making up, and there is the smallest probability of standing still for letter, the person who has the last taking must go on with this man's copy, whether it be good or bad.

The number of the companionship, if possible, should always be determined at the commencement of the work, that they may all proceed upon an equal footing. It should be well ascertained that the letter appropriated for the work will be adequate to keep the persons on it fully employed.

If any part of the matter for distribution, whether in chase or in paper, be desirable or otherwise, for the sorts it may contain, it should be divided equally, or the choice of it thrown for.

When a new companion is put on the work after the respective shares of letter are made up, and if there be not a sufficiency to carry on all the companionship without making up more, he must make up an additional quantity before he can be allowed to partake of any part of that which comes from the press.

Two of the companionship who may have the greatest portion of the first sheet, should make up the furniture for that sheet; and though it may be thought that a disadvantage will be felt in making up the first sheet, they having to ascertain the right margin, yet, properly considered, this disadvantage is sufficiently balanced by their not being likely to meet with a scarcity of furniture, which will frequently occur after several sheets are made up. The other companions in rotation, as their matter is made up, will take an equal share of the furniture. Should an odd sheet be wanted, it will be better to throw for the chance of making it up.

The person to whose turn it falls to impose, must lay up the form for distribution; but as continual disputes arise on this subject, and as it can only be ascertained by comparing the number of pages composed, with the number put in chase by each person; we therefore recommend their keeping an exact account of these pages, which had better be done agreeably to the following plan:

Signatures.	Compositors' Names.							By whom Imposed.
B								
C								
D								
E								
F								
G								
H								

This scale should always be kept by the compositor in the making up; who, when he gives it away to the person that follows him, marks down the number of pages he has made up opposite to the proper signature, and under his own name; also when he imposes, he inserts his name in the column appropriated for that purpose. By following strictly this mode, every sort of dispute will be prevented: and though a private account may be necessary for individual satisfaction, yet it will not avail in settling a general misunderstanding, as the various private accounts may differ, and the charge of inaccuracy may be alleged with as much reason against one as the other: but in this general scale a mistake can be immediately detected. It also operates as a check on those who may be inclined to write out of their proper signature, or to charge more pages than they have imposed.

As the letter is laid up it should be divided in equal proportions; and, if it can be so managed, each person had better distribute the matter originally composed by him; for by this means the sorts which have made his case uneven will again return to him.

It may happen, from one of the companionship absenting himself, that his former share of letter remains undistributed at a time a second division is taking place; under these circumstances he must not be included in this division. In the event of a scarcity of letter, if any man absent himself beyond a reasonable time, his undistributed matter should be divided equally among his companions, and when he returns, he may then have his share of the next division.

The compositor whose matter is in the first part of the proof, lays up the forms on the imposing stone, and corrects. He then hands the proof to the person who has the following matter. The compositor who corrects the last part of the sheet locks up the forms.

The compositor having matter in the first and last part, but not in the middle of the sheet, only lays up the forms and corrects his matter; the locking up is left to the person who corrects last in the sheet.

A compositor having the first page only of the sheet, is required to lay up one form; also to lock up one form if he has only the last page.

If from carelessness in locking up the form—*viz.* the furniture binding, the quoins badly fitted, &c.—any letters or even a page should fall out, the person who has thus locked up the form must immediately repair the damage. But if from bad justification, or in leaded matter the letters *ride* upon the ends of the leads, the loss attending any accident from this circumstance must fall upon the person to whom the matter belongs.

It is the business of the person who locks up the form, to ascertain whether all the pages are of an equal length; and though a defect in this respect is highly reprehensible in the person to whom it attaches, (whose duty it is to rectify it), yet if not previously discovered by the locker-up, and an accident happen, he must make good the defect.

The compositor who imposes a sheet must correct the chargeable proof of that sheet, which is also generally at the same time corrected for press, and take it to the proper place. He must also rectify any defect in the register, arising from the want of accuracy in the furniture.

Forms will sometimes remain a considerable length of time before they are put to press. When this happens, and particularly in the summer, the furniture is liable to shrink, and the pages will, in consequence, if care be not taken, fall out; it is therefore the business of the person who has locked up the forms to attend to them in this respect, or he will be subject to make good any accident which his neglect may occasion.

When forms are wrought off, and ordered to be kept standing, they are then considered under the care of the overseer. When they are desired to be cleared away, it is done in equal proportions by the companionship. During the time any forms have remained under the care of the overseer, should there have been any alteration as to form or substance, such alterations not having been made by the original compositors, they are not subject to clear away those parts of the form that were altered.

If the pressmen unlock a form on the press, and from carelessness in the locking up any part of it fall out, they are subject to the loss that may happen in consequence.

The compositor who locks up a sheet takes it to the proof press, and the pressman, after he has pulled the proof, puts by the forms in the place appointed for that purpose.

Each person in the companionship must lay down his pages properly on the stone for imposition. The compositor whose turn it is to impose, looks them over to see if they are rightly placed: should they, after this examination, lay improperly, and be thus imposed, it will be his business to transpose them: but should the folios be wrong, and the mistake arise from this inaccuracy, it must be rectified by the person to whom the matter belongs. Pages being laid down for imposition, without folios or head lines, must be rectified by the person who has been careless enough to adopt this plan.

In the following tables, which will be found of considerable value to the compositor, we have shewn the number of thousand letters in various sized sheets, commencing with eighteens.

A TABLE,

Shewing the Number of Thousands in a Sheet of Eighteens, Twelves, Octavo, and Quarto, of various Sizes.

The large figures at the top denote the number of lines long; those in the first column the number of en's wide, and those having the Italic letters *e, t, o, q,* shew the number of thousands in a sheet of *eighteens, twelves, octavo,* and *quarto*.—When the odd numbers above the respective thousands in each sheet, amount to five hundred, another thousand is allowed; if less than five hundred they are not reckoned.

20		21		22		23		24			25			26		
18	13*e*	19	14*e*	20	16*e*	21	17*e*	22	19*e*	13*t*	23	21*e*	14*t*	24	22*e*	15*t*
19	14	20	15	21	17	22	18	23	20	13	24	22	14	25	23	16
20	14	21	16	22	17	23	19	24	21	14	25	23	15	26	24	16
21	15	22	17	23	18	24	20	25	22	14	26	23	16	27	25	17
22	16	23	17	24	19	25	21	26	22	15	27	24	16	28	26	17
23	17	24	18	25	20	26	22	27	23	16	28	25	17	29	27	18
24	17	25	19	26	21	27	22	28	24	16	29	26	17	30	28	19
25	18	26	20	27	21	28	23	29	25	17	30	27	18	31	29	19

27			28			29			30			31			32		
25	24*e*	16*t*	26	26*e*	17*t*	27	28*e*	19*t*	28	30*e*	20*t*	29	32*e*	22*t*	30	35*e*	23*t*
26	25	17	27	27	18	28	29	19	29	31	21	30	33	22	31	36	24
27	26	17	28	28	19	29	30	20	30	32	22	31	35	23	32	37	25
28	27	18	29	29	19	30	31	21	31	33	22	32	36	24	33	38	25
29	28	19	30	30	20	31	32	22	32	35	23	33	37	25	34	39	26
30	29	19	31	31	21	32	33	22	33	36	24	34	38	25	35	40	27
31	30	20	32	32	22	33	34	23	34	37	24	35	39	26	36	41	28
32	31	21	33	33	22	34	35	24	35	38	25	36	40	27	37	43	28

33				34				35				36			
31	37*e*	25*t*	16*o*	32	39*e*	26*t*	17*o*	33	42*e*	28*t*	18*o*	34	44*e*	29*t*	20*o*
32	38	25	17	33	40	27	18	34	43	29	19	35	45	30	20
33	39	26	17	34	42	28	18	35	44	29	20	36	47	31	21
34	40	27	18	35	43	29	19	36	45	30	20	37	48	32	21
35	42	28	18	36	44	29	20	37	47	31	21	38	49	33	22
36	43	29	19	37	45	30	20	38	48	32	21	39	51	34	22
37	44	29	20	38	47	31	21	39	49	33	22	40	52	35	23
38	45	30	20	39	48	32	21	40	50	34	22	41	53	35	24

TABLE CONTINUED.

37		38		39		40	
35	47*e* 31*t* 21*o*	36	49*e* 33*t* 22*o*	37	52*e* 35*t* 23*o*	38	55*e* 36*t* 24*o*
36	48 32 21	37	51 34 22	38	53 36 24	39	56 37 25
37	49 33 22	38	52 35 23	39	55 37 24	40	58 38 26
38	51 34 22	39	53 36 24	40	56 37 25	41	59 39 26
39	52 35 23	40	55 36 24	41	58 38 26	42	60 40 27
40	53 36 24	41	56 37 25	42	59 39 26	43	62 41 28
41	55 36 24	42	57 38 26	43	60 40 27	44	63 42 28
42	56 37 25	43	59 39 26	44	62 41 27	45	65 43 29

41		42		43		44	
39	58*e* 38*t* 26*o*	40	60*e* 40*t* 27*o*	41	63*e* 42*t* 28*o*	42	66*e* 44*t* 30*o*
40	59 39 26	41	62 41 28	42	65 43 29	43	68 45 30
41	61 40 27	42	64 42 28	43	67 44 30	44	69 46 31
42	62 41 28	43	65 43 29	44	68 45 30	45	71 48 32
43	63 42 28	44	67 44 30	45	70 46 31	46	73 49 32
44	65 43 29	45	68 45 30	46	71 47 32	47	74 50 33
45	66 44 30	46	70 46 31	47	73 49 32	48	76 51 34
46	68 45 30	47	71 47 32	48	74 50 33	49	77 52 34

45		46		47		48	
43	70*e* 46*t* 31*o*	44	73*e* 49*t* 32*o*	45	76*e* 51*t* 34*o*	46	79*e* 53*t* 35*o* 18*q*
44	71 48 32	45	75 50 33	46	78 52 35	47	81 54 36 18
45	73 49 32	46	76 51 34	47	80 53 35	48	83 55 37 18
46	75 50 33	47	78 52 35	48	81 54 36	49	85 56 38 19
47	76 51 34	48	79 53 35	49	83 55 37	50	86 58 39 19
48	78 52 35	49	81 54 36	50	85 56 38	51	88 59 39 20
49	79 53 35	50	83 55 37	51	86 58 38	52	90 60 40 20
50	81 54 36	51	84 56 38	52	88 59 39	53	92 61 41 20

49		50		51	
47	83*e* 55*t* 37*o* 18*q*	48	86*e* 58*t* 38*o* 19*q*	49	90*e* 60*t* 40*o* 20*q*
48	85 56 38 19	49	88 59 39 20	50	92 61 41 20
49	86 58 38 19	50	90 60 40 20	51	94 62 42 21
50	88 59 39 20	51	92 61 41 20	52	95 64 42 21
51	90 60 40 20	52	94 62 42 21	53	97 65 43 22
52	92 61 41 20	53	95 64 42 21	54	99 66 44 22
53	93 62 42 21	54	97 65 43 22	55	101 67 45 22
54	95 64 42 21	55	99 66 44 22	56	103 69 46 23

TABLE CONTINUED.

	52					53					54			
50	94*e*	62*t*	42*o*	21*q*	51	97*e*	65*t*	42*o*	22*q*	52	101*e*	67*t*	45*o*	22*q*
51	95	64	42	21	52	99	66	44	22	53	103	69	46	23
52	97	65	43	22	53	101	67	45	22	54	105	70	47	23
53	99	66	44	22	54	103	69	46	23	55	107	71	48	24
54	101	67	45	22	55	105	70	47	23	56	109	73	48	24
55	103	69	46	23	56	107	71	47	24	57	111	74	49	25
56	105	70	47	23	57	109	73	48	24	58	113	75	50	25
57	107	71	47	24	58	111	74	49	25	59	114	76	51	25

	55					56					57			
53	105*e*	70*t*	47*o*	23*q*	54	109*e*	73*t*	48*o*	24*q*	55	113*e*	75*t*	50*o*	25*q*
54	107	71	48	24	55	111	74	49	25	56	115	77	51	26
55	109	73	48	24	56	113	75	50	25	57	117	78	52	26
56	111	74	49	25	57	115	77	51	26	58	119	79	53	26
57	113	75	50	25	58	117	78	52	26	59	121	81	54	27
58	115	77	51	26	59	119	79	53	26	60	123	82	55	27
59	117	78	52	26	60	121	81	54	27	61	125	83	56	28
60	119	79	53	26	61	123	82	55	27	62	127	85	57	28

	58					59					60			
56	117*e*	78*t*	52*o*	26*q*	57	121*e*	81*t*	54*o*	27*q*	58	125*e*	84*t*	56*o*	28*q*
57	119	79	53	26	58	123	82	55	27	59	127	85	57	28
58	121	81	54	27	59	125	84	56	28	60	130	86	58	29
59	123	82	55	27	60	127	85	57	28	61	132	88	59	29
60	125	84	56	28	61	130	86	58	29	62	134	89	60	30
61	127	85	57	28	62	132	88	59	29	63	136	91	60	30
62	129	86	58	29	63	134	89	59	30	64	138	92	61	31
63	131	88	58	29	64	136	91	60	30	65	140	94	62	31

	61					62					63			
59	130*e*	86*t*	58*o*	29*q*	60	134*e*	89*t*	60*o*	30*q*	61	138*e*	92*t*	61*o*	31*q*
60	132	88	59	29	61	136	91	61	30	62	141	94	62	31
61	134	89	60	30	62	138	92	62	31	63	143	95	64	32
62	136	91	61	30	63	141	94	62	31	64	145	97	65	32
63	138	92	61	31	64	143	95	63	32	65	147	98	66	33
64	141	94	62	31	65	145	97	64	32	66	150	100	67	33
65	143	95	63	32	66	147	98	65	33	67	152	101	68	34
66	145	97	64	32	67	150	100	66	33	68	154	103	69	34

Enumeration of Letters.

TABLE CONTINUED.

64					65					66				
62	143*e*	95*t*	63*o*	32*q*	63	147*e*	98*t*	66*o*	33*q*	64	152*e*	101*t*	68*o*	34*q*
63	145	97	65	32	64	150	100	67	33	65	154	103	69	34
64	147	98	66	33	65	152	101	68	34	66	157	105	70	35
65	150	100	67	33	66	154	103	69	34	67	159	106	71	35
66	152	101	68	34	67	157	105	70	35	68	162	108	72	36
67	154	103	69	34	68	159	106	71	35	69	164	109	73	36
68	157	104	70	35	69	161	108	72	36	70	166	111	74	37
69	159	106	71	35	70	164	109	73	36	71	169	112	75	37

67					68					69				
65	157*e*	105*t*	70*o*	35*q*	66	162*e*	108*t*	72*o*	36*q*	67	166*e*	111*t*	74*o*	37*q*
66	159	106	71	35	67	164	109	73	36	68	169	113	75	38
67	162	108	72	36	68	166	111	74	37	69	171	114	76	38
68	164	109	73	36	69	169	113	75	38	70	174	116	77	39
69	166	111	74	37	70	171	114	76	38	71	176	118	78	39
70	169	113	75	38	71	174	116	77	39	72	179	119	79	40
71	171	114	76	38	72	176	118	78	39	73	181	121	81	40
72	174	116	77	39	73	179	119	80	40	74	184	123	82	41

70					71					72				
68	171*e*	114*t*	76*o*	38*q*	69	176*e*	118*t*	78*o*	39*q*	70	181*e*	121*t*	81*o*	40*q*
69	174	116	77	39	70	179	119	80	40	71	184	123	82	41
70	176	118	78	39	71	181	121	81	40	72	187	124	83	41
71	179	119	80	40	72	184	123	82	41	73	189	126	84	42
72	181	121	81	40	73	187	124	83	41	74	192	128	85	43
73	184	123	82	41	74	189	126	84	42	75	194	130	86	43
74	186	124	83	41	75	192	128	85	43	76	197	131	88	45
75	189	126	84	42	76	194	130	86	43	77	200	133	89	44

73				74				75				76			
71	124*t*	83*o*	41*q*	72	128*t*	85*o*	43*q*	73	131*t*	88*o*	44*q*	74	135*t*	90*o*	45*q*
72	126	84	42	73	130	86	43	74	133	89	44	75	137	91	46
73	128	85	43	74	131	88	44	75	135	90	45	76	139	92	46
74	130	86	43	75	133	89	44	76	137	91	46	77	140	94	47
75	131	88	44	76	135	90	45	77	139	92	46	78	142	95	47
76	133	89	44	77	137	91	46	78	140	94	47	79	144	96	48
77	135	90	45	78	139	92	46	79	142	95	47	80	146	97	49
78	137	91	46	79	140	94	47	80	144	96	48	81	148	98	40

TABLE CONTINUED.

77				78				· 79				80			
75	139*t*	92*o*	46*q*	76	142*t*	95*o*	47*q*	77	146*t*	97*o*	49*q*	78	150*t*	100*o*	50*q*
76	140	94	47	77	144	96	48	78	148	99	49	79	152	101	51
77	142	95	47	78	146	97	49	79	150	100	50	80	154	102	51
78	144	96	48	79	148	99	49	80	152	101	51	81	156	104	52
79	146	97	49	80	150	100	50	81	154	102	51	82	157	105	52
80	148	99	49	81	152	101	51	82	155	104	52	83	159	106	53
81	150	100	50	82	154	102	51	83	157	105	52	84	161	108	54
82	152	101	51	83	155	104	52	84	159	106	53	85	163	109	54

81				82				83				84			
79	154*t*	102*o*	51*q*	80	157*t*	105*o*	52*q*	81	161*t*	108*o*	54*q*	82	165*t*	110*o*	55*q*
80	156	104	52	81	159	106	53	82	163	109	54	83	167	112	56
81	157	105	52	82	161	108	54	83	165	110	55	84	169	113	56
82	159	106	53	83	163	109	54	84	167	112	56	85	171	114	57
83	161	108	54	84	165	110	55	85	169	113	56	86	173	116	58
84	163	109	54	85	167	112	56	86	171	114	57	87	175	117	58
85	165	110	55	86	169	113	56	87	173	116	58	88	177	118	59
86	167	111	56	87	171	114	57	88	175	117	58	89	179	120	60

85				86				87			88			89		
83	169*t*	113*o*	56*q*	84	173*t*	116*o*	58*q*	85	118*o*	59*q*	86	121*o*	61	87	124*o*	62
84	171	114	57	85	175	117	58	86	120	60	87	122	61	88	125	63
85	173	116	58	86	178	118	59	87	121	61	88	124	62	89	127	63
86	175	117	58	87	180	120	60	88	122	61	89	125	63	90	128	64
87	177	118	59	88	182	121	61	89	124	62	90	127	63	91	130	65
88	180	120	60	89	184	122	61	90	125	63	91	128	64	92	131	66
89	182	121	61	90	186	124	62	91	127	63	92	130	65	93	132	66
90	184	122	61	91	188	125	63	92	128	64	93	131	65	94	134	67

90			91			92			93			94			95		
88	127*o*	63*q*	89	130*o*	65*q*	90	132*o*	66*q*	91	135*o*	68	92	138*o*	69	93	141*o*	71
89	128	64	90	131	66	91	134	67	92	137	68	93	140	70	94	143	71
90	130	65	91	132	66	92	135	68	93	138	69	94	141	71	95	144	72
91	131	66	92	134	67	93	137	68	94	140	70	95	143	71	96	146	73
92	132	66	93	135	68	94	138	69	95	141	71	96	144	72	97	147	74
93	134	67	94	137	68	95	140	70	96	143	71	97	146	73	98	149	74
94	135	68	95	138	69	96	141	71	97	144	72	98	147	74	99	150	75
95	137	68	96	140	70	97	143	71	98	146	73	99	149	74	100	152	76

A TABLE,

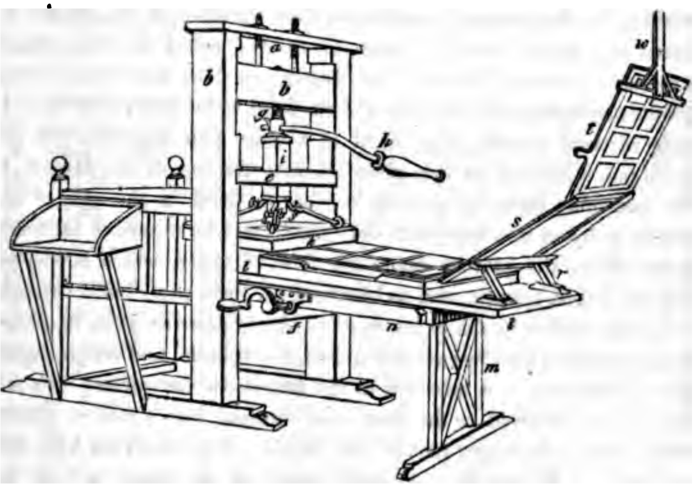
Shewing the Price of any Number of Letters, from 16,000 *to* 100,000, *at* 5¼*d.* 5½*d.* 5¾*d.* 6*d.* 6¼*d.* 7*d.* 7½*d. and* 8*d. per Thousand.*

Th.	5¼d.		5½d.		5¾d.		6d.		6¼d.		7d.		7½d.		8d.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
17	7	5¼	7	9½	8	1¾	8	6	8	10¼	9	11	10	7½	11	4
18	7	10½	8	3	8	7½	9	0	9	4½	10	6	11	3	12	0
19	8	3¾	8	8½	9	1¼	9	6	9	10¾	11	1	11	10½	12	8
20	8	9	9	2	9	7	10	0	10	5	11	8	12	6	13	4
21	9	2¼	9	7½	10	0¾	10	6	10	11¼	12	3	13	1½	14	0
22	9	7½	10	1	10	6½	11	0	11	5½	12	10	13	9	14	8
23	10	0¾	10	6½	11	0¼	11	6	11	11¾	13	5	14	4½	15	4
24	10	6	11	0	11	6	12	0	12	6	14	0	15	0	16	0
25	10	11¼	11	5½	11	11¾	12	6	13	0¼	14	7	15	7½	16	8
26	11	4½	11	11	12	5½	13	0	13	6½	15	2	16	3	17	4
27	11	9¾	12	4½	12	11¼	13	6	14	0¾	15	9	16	10½	18	0
28	12	3	12	10	13	5	14	0	14	7	16	4	17	6	18	8
29	12	8¼	13	3½	13	10¾	14	6	15	1¼	16	11	18	1½	19	4
30	13	1½	13	9	14	4½	15	0	15	7½	17	6	18	9	20	0
31	13	6¾	14	2½	14	10¼	15	6	16	1¾	18	1	19	4½	20	8
32	14	0	14	8	15	4	16	0	16	8	18	8	20	0	21	4
33	14	5¼	15	1½	15	9¾	16	6	17	2¼	19	3	20	7½	22	0
34	14	10½	15	7	16	3½	17	0	17	8½	19	10	21	3	22	8
35	15	3¾	16	0½	16	9¼	17	6	18	2¾	20	5	21	10½	23	4
36	15	9	16	6	17	3	18	0	18	9	21	0	22	6	24	0
37	16	2¼	16	11½	17	8¾	18	6	19	3¼	21	7	23	1½	24	8
38	16	7½	17	5	18	2½	19	0	19	9½	22	2	23	9	25	4
39	17	0¾	17	10½	18	8¼	19	6	20	3¾	22	9	24	4½	26	0
40	17	6	18	4	19	2	20	0	20	10	23	4	25	0	26	8
41	17	11¼	18	9½	19	7¾	20	6	21	4¼	23	11	25	7½	27	4
42	18	4½	19	3	20	1½	21	0	21	10½	24	6	26	3	28	0
43	18	9¾	19	8½	20	7¼	21	6	22	4¾	25	1	26	10½	28	8
44	19	3	20	2	21	1	22	0	22	11	25	8	27	6	29	4
45	19	8¼	20	7½	21	6¾	22	6	23	5¼	26	3	28	1½	30	0
46	20	1½	21	1	22	0½	23	0	23	11½	26	10	28	9	30	8
47	20	6¾	21	6½	22	6¼	23	6	24	5¾	27	5	29	4½	31	4
48	20	1	22	0	23	0	24	0	25	0	28	0	30	0	32	0
49	21	5¼	22	5½	23	5¾	24	6	25	6¼	28	7	30	7½	32	8
50	21	10½	22	11	23	11½	25	0	26	0½	29	2	31	3	33	4
51	22	3¾	23	4½	24	5¼	25	6	26	6¾	29	9	31	10½	34	0
52	22	9	23	10	24	11	26	0	27	1	30	4	32	6	34	8

A TABLE, &c. *continued.*

Th.	5¼d.		5½d.		5¾d.		6d.		6¼d.		7d.		7½d.		8d.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
53	23	2¼	24	3½	25	4¾	26	6	27	7¼	30	11	33	1½	35	4
54	23	7½	24	9	25	10½	27	0	28	1½	31	6	33	9	36	0
55	24	0¾	25	2½	26	4¼	27	6	28	7¾	32	1	34	4½	36	8
56	24	6	25	8	26	10	28	0	29	2	32	8	35	0	37	4
57	24	11¼	26	1½	27	3¾	28	6	29	8¼	33	3	35	7½	38	0
58	25	4½	26	7	27	9½	29	0	30	2½	33	10	36	3	38	8
59	25	9¾	27	0½	28	3¼	29	6	30	8¾	34	5	36	10½	39	4
60	26	3	27	6	28	9	30	0	31	3	35	0	37	6	40	0
61	26	8¼	27	11½	29	2¾	30	6	31	9¼	35	7	38	1½	40	8
62	27	1½	28	5	29	8½	31	0	32	3½	36	2	38	9	41	4
63	27	6¾	28	10½	30	2¼	31	6	32	9¾	36	9	39	4½	42	0
64	28	0	29	4	30	8	32	0	33	4	37	4	40	0	42	8
65	28	5¼	29	9½	31	1¾	32	6	33	10¼	37	11	40	7½	43	4
66	28	10½	30	3	31	7½	33	0	34	4½	38	6	41	3	44	0
67	29	3¾	30	8½	32	1¼	33	6	34	10¾	39	1	41	10½	44	8
68	29	9	31	2	32	7	34	0	35	5	39	8	42	6	45	4
69	30	2¼	31	7½	33	0¾	34	6	35	11¼	40	3	43	1½	46	0
70	30	7½	32	1	33	6½	35	0	36	5½	40	10	43	9	46	8
71	31	0¾	32	6½	34	0¼	35	6	36	11¾	41	5	44	4½	47	4
72	31	6	33	0	34	6	36	0	37	6	42	0	45	0	48	0
73	31	11¼	33	5½	34	11¾	36	6	38	0¼	42	7	45	7½	48	8
74	32	4½	33	11	35	5½	37	0	38	6½	43	2	46	3	49	4
75	32	9¾	34	4½	35	11¼	37	6	39	0¾	43	9	46	10½	50	0
76	33	3	34	10	36	5	38	0	39	7	44	4	47	6	50	8
77	33	8¼	35	3½	36	10¾	38	6	40	1¼	44	11	48	1½	51	4
78	34	1½	35	9	37	4½	39	0	40	7½	45	6	48	9	52	0
79	34	6¾	36	2½	37	10¼	39	6	41	1¾	46	1	49	4½	52	8
80	35	0	36	8	38	4	40	0	41	8	46	8	50	0	53	4
81	35	5¼	37	1½	38	9¾	40	6	42	2¼	47	3	50	7½	54	0
82	35	10½	37	7	39	3½	41	0	42	8½	47	10	51	3	54	8
83	36	3¾	38	0½	39	9¼	41	6	43	2¾	48	5	51	10½	55	4
84	36	9	38	6	40	3	42	0	43	9	49	0	52	6	56	0
85	37	2¼	38	11½	40	8¾	42	6	44	3¼	49	7	53	1½	56	8
86	37	7½	39	5	41	2½	43	0	44	9½	50	2	53	9	57	4
87	38	0¾	39	10½	41	8¼	43	6	45	3¾	50	9	54	4½	58	0
88	38	6	40	4	42	2	44	0	45	10	51	4	55	0	58	8
89	38	11¼	40	9½	42	7¾	44	6	46	4¼	51	11	55	7½	59	4
90	39	4½	41	3	43	1½	45	0	46	10½	52	6	56	3	60	0
91	39	9¾	41	8½	43	7¼	45	6	47	4¾	53	1	56	10½	60	8
92	40	3	42	2	44	1	46	0	47	11	53	8	57	6	61	4
93	40	8¼	42	7½	44	6¾	46	6	48	5¼	54	3	58	1½	62	0
94	41	1½	43	1	45	0½	47	0	48	11½	54	10	58	9	62	8
95	41	6¾	43	6½	45	6¼	47	6	49	5¾	55	5	59	4½	63	4
96	42	0	44	0	46	0	48	0	50	0	56	0	60	0	64	0
97	42	5¼	44	5½	46	5¾	48	6	50	6¼	56	7	60	7½	64	8
98	42	10½	44	11	46	11½	49	0	51	0½	57	2	61	3	65	4
99	43	3¾	45	4½	47	5¼	49	6	51	6¾	57	9	61	10½	66	0
100	43	9	45	10	47	11	50	0	52	1	58	4	62	6	66	8

Before we proceed to an examination of the mode of working type, and the duties of a pressman generally, it may be advisable to notice some of the presses employed for that purpose. The wooden press being earliest in chronological order will first claim our attention.



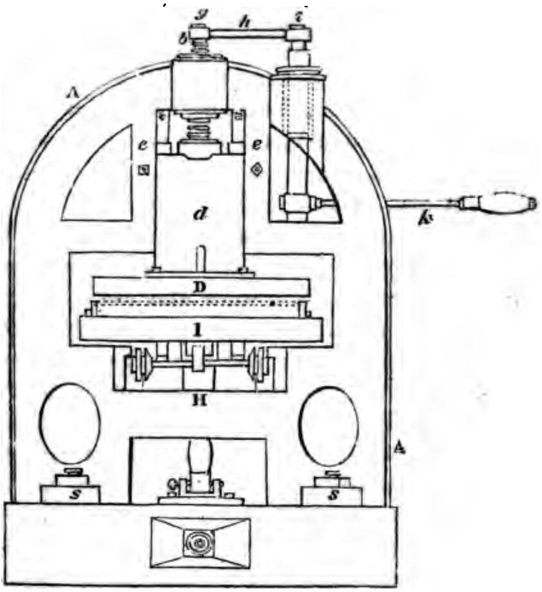
The body of the press consists of two strong posts, *b*, placed perpendicular, called the cheeks, which are joined together by four horizontal cross-pieces; the upper of these, *a*, is called the cap, and has no office but to retain the two cheeks at their required distances asunder: the next cross-piece, *b*, is called the head; it is fitted by tenons at the ends into mortises between the cheeks, and these mortises are filled up with pieces of pasteboard or soft wood, in such a manner as to admit of a small motion or yielding. The head is sustained by two long screw-bolts, which suspend it from the cap: in the head is fixed a brass nut, containing a female screw or worm, which is fastened in the wood by two short bolts to keep it up: the worm is adapted to receive the screw by which the pressure is produced. The third cross-piece, *e*, called the shelves, or till, is to guide and keep steady a part, *i*, called the hose, in which the spindle of the screw (to be spoken of hereafter) is inclosed. The fourth cross plank, *f*, called the winter, is fitted between the cheeks to bear the carraige; it sustains the effort of the press beneath, as the head does above, each giving way a little, the one upwards, the other downwards, to make the pull the easier. The spindle, *g*, is an upright piece of iron, pointed at the lower end with steel, having a male screw formed on its upper end, which enters about four inches into the female screw or worm fixed in the head: through the eye of this spindle is fixed the bar or handle, *h*, by which the pressman works the press. The platten, *k*, or surface which acts upon the paper to produce the impression, is suspended from the point of the spindle by means of a square block or frame of wood, *i*, called the hose, which is guided by passing through the shelves, *e e*: the lower part of the spindle passes through the hose, and its point rests upon the platten, *k*, being received into the plug fixed in a brass pan supplied with oil, which pan is fixed to an iron plate let into the top of the platten, *k*. The pressman then, by pulling the bar *h*, fixed in the eye of the spindle *g*, by an iron key turns the spindle, and by means of its screw presses down the platten upon the form of types, which is covered with the paper, tympan, and its blankets, all these parts being brought under the platten by the carriage, when the impression is to be given. That the platten may be suspended from the spindle, and rise up again with it, the hose, *i*, is attached to the spindle by the garter; this is a fillet of iron screwed to the hose, and entering into a nick or groove formed round the upper part of the spindle; it prevents the hose falling down on the spindle. At each corner of the lower part of the hose there is an iron hook fastened, and from these to similar hooks, fastened at each corner of the platten, *k*, cords or packthread are looped to suspend the platten, and they are exactly adjusted, to hang the platten truly level.

The carriage *l*, which is the other principal part of the press, is adapted to run into the space between the cheeks under the platten. It is supported upon the ribs, *n*, which are part of a horizontal wooden frame, having its fore-part supported by a wooden prop, *m*, called the fore-stay, while the other end rests on the winter. On the rails of this frame two long iron bars or ribs are nailed, and under the plank of the carriage are nailed short pieces of iron or steel, called cramp irons, which slide upon the ribs, when the carriage is run in or out, by the following means. Beneath the carriage is placed a small spindle called the spit, with a double wheel formed in the middle of it, round which leather girths are passed and fastened, the opposite ends being nailed to each end of the plank, *l*, of the carriage. On the extreme end of the spit is fixed the handle or rounce by which the pressman turns the spit, and this, by means of the wheel and straps, runs the carriage in or out at pleasure. The carriage itself consists of a strong wooden plank, *l*, upon which a square frame of wood is fixed, to form the coffin or cell, in which a marble or polished stone is inclosed, for the form of the types to be laid upon. To this coffin are fastened leather stay-girths, one to each side, which being at the opposite ends fastened to the cheeks of the press, prevent the carriage running too far out, when drawn from under the platten. On the fore-part of the plank is a gallows, *r*, which serves to sustain the tympans, when turned up from off the form, on their hinges. The tympans, *s*, are square frames covered with parchment. The frames are made of three slips of very thin wood, and at the top a slip of iron, still thinner, called a head-band. The two tympans are fitted together by the frame of one being small enough to lie within the other: the outward tympan is fastened with iron hinges to the coffin. Between the two parchments of the tympans two or three thicknesses of blankets are placed, which serve to make the impression of the platten upon the surface of the letters more equal, as also to prevent the letters from being broken by the force of the press. The use of the inner tympan is to confine these blankets. The frisket, *t*, is a square frame of iron, made very thin, also covered with paper or parchment, and fastened to the head-band of the outer tympan by hinges: it folds down upon the tympan, to enclose the sheet of paper between them, the parchment or paper with which the frisket is covered being cut out in the necessary places, that the sheet, when placed between the tympan and frisket, and both together folded down on the form, may receive the ink from the types in the pages; but the frisket sheet keeps the margins clean. The tympan and frisket, when folded down, lie flat upon the form, and the carriage with them is run into the press; but when the sheet is to be taken out, the tympan is lifted up upon its hinges, and rests as represented, in an inclined position against the gallows, *r*, before mentioned, at the back part of the carriage; then the frisket, *t*, is lifted up on its hinges, and sustained by a slip of wood, *w*, hanging from the ceiling, whilst it continues open, to take out the printed sheets and put in others.

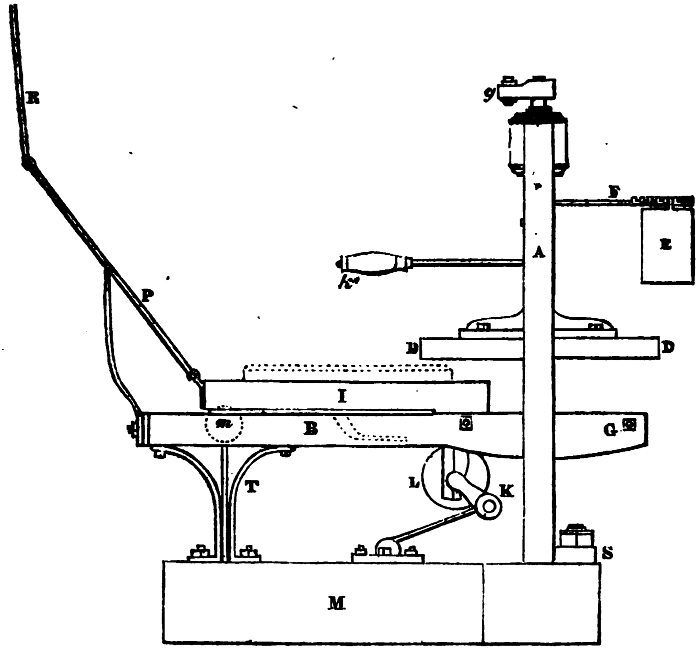
To regulate the margin, and make the lines and pages answer each other when printed on the opposite side of the sheet, two iron points are fixed to the middle of the wooden sides of the frame of the tympan, which make two holes in the sheet. These holes are placed on the same pins, when the sheet is returned for making an impression on the other side, which is called the reiteration, and the pins are adjustable, that they may make the impressions of the opposite sides exactly correspond.

The ink, when the improved inking cylinder is not employed, is applied upon the form by balls, which are a kind of wooden cups with handles, the cavities of which are filled with wool, or hair, covered with sheep's skin nailed to the wood. One of these the pressman takes in each hand, and applying them on the ink-block, to charge them with ink, he works them one against the other, to mix and distribute the ink equally: and, at last, smears over the form, by beating or dabbing them several times over the whole face of it; this leaves the form in a condition to be passed under the press, with the moistened paper laid on it.

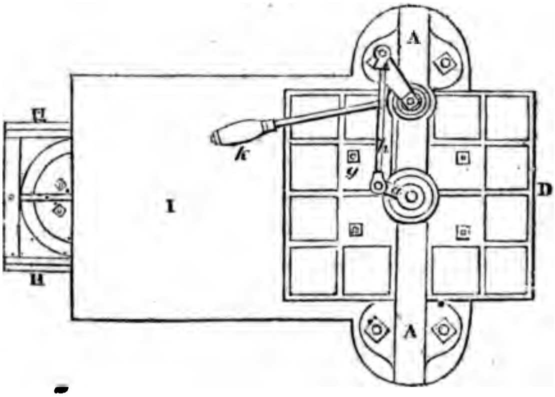
The Stanhope press, represented beneath, may now be described.



A A is a massive frame of cast iron, formed in one piece: this is the body of the press, in the upper part of which a nut is fixed for the reception of the screw *b*, and its point operates upon the upper end of a slider *d*, which is fitted into a dovetail groove formed between two vertical bars, *e*, *e*, of the frame. The slider has the platten, D D, firmly attached to the lower end of it; and being accurately fitted between the guides *e e*, the platten must rise and fall parallel to itself when the screw, *b*, is turned. The weight of the platten and slider are counterbalanced by a heavy weight, E, behind the press, which is suspended from a lever, F, and this acts upon the slider to lift it up, and keep it always bearing against the point of the screw.



At G, in the annexed view of the press, are two projecting pieces, cast all in one with the main frame, to support the carriage when the pull is made; to these the rails, H, are screwed, and placed truly horizontal for the carriage, I, to run upon them, when it is carried under the press to receive the impression, or drawn out to remove the printed sheet. The carriage is moved by the rounce or handle, K, with a spit and leather girths, very similar to the wooden press. Upon the spit, or axle of the handle, K, a wheel, L, is fixed, and round this leather belts are passed, one extending to the back of the carriage to draw it in, and two others, which pass round the wheel in an opposite direction, to draw it out. By this means, when the handle is turned one way it draws out the carriage, and by reversing the motion it is carried in. There is likewise a check strap, *f*, from the wheel down to the wooden base, M, of the frame, and this limits the motion of the wheel, and consequently the excursion of the carriage. The principal improvement of Earl Stanhope's press consists in the manner of giving motion to the screw, *b*, of it, which is not done simply by a bar or lever attached to the screw, but by a second lever; the screw, *b*, has a short lever, *g*, fixed upon the upper end of it, and this communicates by an iron bar, or link, *h*, to another lever, *i*, of rather shorter radius, which is fixed upon the upper end of a second spindle, *l*, and to this the bar or handle, *k*, is fixed. Now when the workman pulls this handle, he turns round the spindle, *l*, and by the connexion of the rod, *h*, the screw, *b*, turns with it, and causes the platten to descend and produce the pressure. But it is not simply this alone, for the power of the lever, *k*, is transmitted to the screw in a ratio proportioned to the effect required at the different parts of the pull; thus at first, when the pressman takes the bar, *k*, it lies in a direction parallel to the frame, or across the press, and the short lever, *i*, (being nearly perpendicular thereto,) is also nearly at right angles to the connecting rod *h*; but the lever, *g*, of the screw makes a considerable angle with the rod, which therefore acts upon a shorter radius to turn the screw; because the real power exerted by any action upon a lever, is not to be considered as acting with the full length of the lever between its centres, but with the distance in a perpendicular drawn from the line in which the action is applied to the centre of the lever. Therefore, when the pressman first takes the handle, *k*, the lever, *i*, acts with its full length upon a shorter length of leverage, *g*, on the screw, which will consequently be turned more rapidly than if the bar itself was attached to it; but on continuing the pull, the situation of the levers change, that of the screw, *g*, continually increasing in its acting length, because it comes nearer to a perpendicular with the connecting rod, and at the same time the lever, *i*, diminishes its acting length, because, by the obliquity of the lever, the rod, *h*, approaches the centre, and the perpendicular distance diminishes; the bar or handle



also comes to a more favourable position for the man to pull, because he draws nearly at right angles to its length. All these causes combined have the best effect in producing an immense pressure, without loss of time; because, in the first instance, the lever acts with an increased motion upon the screw, and brings the platten down very quickly upon the paper, but by that time the levers have assumed such a position as to exert a more powerful action upon each other, and this action continues to increase as the bar is drawn forwards, until the lever, *i*, and the connecting rod are brought nearly into a straight line, and then the power is immensely great, and capable of producing any requisite pressure which the parts of the press will sustain without yielding. The handle is sometimes made to come to rest against a stop, which prevents it moving further, and therefore regulates the degree of pressure given upon the work: but to give the means of increasing or diminishing this pressure for different kinds of work, the stop is made moveable to a small extent. A better plan is adopted by some makers of the Stanhope press, *viz.* to have a screw adjustment at the end of the connecting rod *h*, by which it can be shortened; it is done by fitting the centre pin which unites it to the lever, *g*, in a bearing piece, which slides in a groove formed in the rod, and is regulated by the screw. This shortening of the connecting rod produces a greater or less descent of the platten, when the handle is brought to the stop.

The advantages of the iron presses in working are very considerable, both in saving labour and time. The first arises from the beautiful contrivance of the levers, the power of the press being almost incalculable at the moment of producing the impression; and this is not attended with a correspondent loss of time, as is the case in all other mechanical powers, because the power is only exerted at the moment of pressure, being before that adapted to bring down the platten as quickly as possible. This great power of the press admits of a saving of time, by printing the whole sheet of paper at one pull, the platten being made sufficiently large for the purpose; whereas, in the old press, the platten is only half the size of the sheet. In the Stanhope press, the whole surface is printed at once, with far less power upon the handle than the old press when printing but half the surface. This arises not only from the levers, but from the iron framing of the press, which will not admit of any yielding, as the wood always does, and indeed is intended to do, the head being often packed up with elastic substances, such as pasteboard, or even cork. In this case much power is lost, for in an elastic press the pressure is gained by screwing or straining the parts up to a certain degree of tension, and the effort to return produces the pressure: now in this case the handle will make a considerable effort to return, which, though it is in reality giving back to the workman a portion of the power he exerted on the press, is only an additional labour, as it obliges him to bear the strain a longer time than he otherwise would. The iron has very little elasticity, and those who use them find it advantageous to diminish the thickness of the blankets in the tympan to one very thin piece of fine cloth; the lever has then very little tendency to return, and the pull is easy in the extreme, requiring very little more force to move it at the latter part, than at the first part: indeed it is so different from the other press, that when an experienced pressman first tries it, he cannot feel any of that re-action which he has been accustomed to, and will not believe, till he sees the sheet, that he has produced any impression at all; and for many days after he begins to work at an iron press, he by habit throws back all the weight of his body in such a manner, as to bring the handle up to its stop with a concussion that shakes his arm very much; and in consequence most pressmen, after a few hours' work, feel inclined to give up the iron press; but when they have once got into a new habit of standing more upright, and applying only as much force as it requires, the labour of the pull becomes less than that of running the carriage in and out; and men who are accustomed to the iron presses only, would be scarcely able to go through the work of the old press.

Previous to the introduction of machines into the business of printing, the press department was one of great labour and difficulty, and the number of copies of a newspaper, which could be printed within the hour, seldom exceeded 750,* even with extraordinary exertion. The consequence was, that in newspaper offices, where the circulation was extensive, it was found necessary, in order to get the paper published in time, to compose two or more copies, so that by going to press at the same time, the demands of the public might be complied with; thus occasioning an enormous increase of expenditure both in the compositors' and press departments. In a newspaper circulating seven or eight thousand copies, this expense, annually, could not have been less than 2,000*l.*; all of which has been saved by the introduction of machines, which are worked by steam or hand.

The first machine used in London was made, we believe, by two

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* This estimation is for newspapers only;—the regular number of sheets of book-work being averaged at 250 per hour.

Saxons, named König and Baur,[*] in 1814. This machine, or one upon a similar principle, is now in use, worked by steam, at the Times office, and there are others in various other offices. The great expense of erecting machines worked by steam, led to the invention of others, which are worked by hand, but which have been liable to many objections on the score of the labour requisite in turning the wheel, and the injury to the type. We are happy, however, to find, that Mr. Miller, of Fleet Street, after an expenditure of several thousand pounds, and the most unwearied exertions, has succeeded in producing a machine capable of working 2000 sheets per hour, without any danger of accident, and with comparatively little labour to the persons employed; whilst, from the simplicity of the construction, and the regularity of the action, the type has not even the ordinary wear of the common printing press. The machine represented in our Engraving, is what is called a Single machine, *viz.* it admits of only one form or side of a newspaper at a time. The double cylinder machines now in use, are so complicated, and are so liable to accident, that Mr. Miller has very judiciously confined his views to the production of single ones; which, whilst they are open to none of the objections of the double machines now in use, are equally fit for the purposes of a newspaper establishment; because, as the first, or outer form or side of a newspaper may be sent to press some hours before the inner form, no inconvenience is experienced. In extensive concerns, however, it may be advisable to have two single machines.

This machine is set in motion by the power of one man, and is adapted to print one side of a sheet at a time, and with such astonishing velocity as to produce upwards of 2000 impressions per hour, with the attendance of two boys, who are employed in laying on the blank sheets of paper, and two others for taking off the printed sheets. The form of types is placed upon a carriage, which slides backwards and forwards along rails upon the fixed frame of the machine, so as to pass beneath the surface of the large printing cylinder. The blank sheet of paper being first laid on the tympan, is carried down between rollers and tapes under the cylinder, which presses it upon the form of types, and prints it; from whence it is conducted forwards, and delivered on other tapes, where a boy is stationed to take it off. The tapes which carry the sheet of paper along under the surface of the cylinder, are narrow enough to lie in the spaces between the pages for printing, and do not therefore prevent the sheet from applying itself to the types, although they pass entirely across its surface, so as to keep it in place. These tapes are arranged over small pullies, which can be fixed at any required distance apart, so as to accord with the spaces between the pages for printing different kinds of work, such as folios, quartos, octavos, &c. The mode of procuring register is by points, which can be moved with every facility in any direction. The machine has two distinct sets of inking apparatus, one at each end, being so arranged as to furnish and distribute the ink by means of elastic composition rollers upon the form of types, as it moves backwards and forwards underneath them. The reservoirs of ink from which the rollers are supplied, are fixed on each end of the carriage, near which are also other rollers to distribute the ink uniformly over the surface of the inking rollers. The rollers being made to pass twice over the types before an impression is made from them, produce an effect in inking them, equivalent to what would be afforded by passing the common inking roller four times over them, which is all that is usually deemed necessary to distribute the ink equally over the types, so as to render the impression clear and uniform. The feeding roller is supplied with ink by means of a trough and regulating scraper. While the impression is being produced, the receiving roller is brought in contact with the feeding roller while in motion, and receives a sufficient quantity of ink for the next impression, while the type carriage is returning to its first position. The distributing roller, whilst revolving, has, at the same time, a lateral motion given to it, in order to distribute the ink over the whole surface of the composition rollers. The mechanism, by which the moving power is communicated to the machine, is constructed on a principle entirely new, and the machine is worked with as much facility as a common printing press. The power of the pressing cylinder and of the inking roller can be regulated and adjusted with mathematical accuracy, so that a strong or a light impression, as the nature of the work may require, can be given with the utmost nicety. From the simplicity of the construction of the machine, and the very small degree of friction to which it is subjected, it is not liable to get out of order. When in full action, it can be stopped instantly, by one of the boys employed in laying on the sheet. The machines are so easily worked, that a steam engine, of the power of two horses only, would be sufficient to impel several of them.

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[*] König (a printer) was the inventor, and Baur the machinist.

The following description refers to Plate VI.

A A. The tympans, on which the blank sheets are laid.

B. The printing cylinder.

C C. The inking rollers.

D. The form of types on the carriage.

E E. Reservoirs of ink, from which the rollers are supplied.

F F. Tapes which carry the sheet under the cylinder in the direction it has to travel.

G G. Register points.

H. The mechanism which communicates the moving power to the machine.

The mode of constructing a press having thus been explained, it now becomes advisable to examine more minutely that branch of typography which relates to the working of a form. This is usually comprehended under the general title of press-work.

A careful pressman will take care, before he lays a form on the press, to wipe the press stone perfectly clean; for if any (though small) hard particle be on it, the letter that lies on that matter will, with pulling, quickly rise, and not only make a stronger impression than the rest of the form, but in all probability cause a dent in the platten, and bear off the adjacent letters. He also carefully examines whether the back side of the form be clean, before he attends to the register, or otherwise makes ready his form. The form should be laid under the centre of the platten.

He then lays the tympans down upon the form, and places the blankets, which he rubs to soften them, in it; then putting in the inner tympan, he fastens it with the hooks for that purpose, which serve to keep it from springing upwards. He then folds a sheet of the paper he is about to work, in quarto, and lays the long crease of it upon the middle of the long cross, and the short crease over the middle of the grooves of the short cross, if it lie in the middle of the form; for in twelves it does not, and then he folds the paper accordingly. Now, wetting his tympan, which is done for close, heavy works, but not for very light open works, he turns it down upon the paper, and running in the carriage, pulls that sheet, which, with the wet tympan and force of the pull, causes it to stick; and turning up the tympan again, he examines if the sheet be laid even; if it has not been laid even on the form, it is better to relay it, and pull it again; for it is of considerable importance that it should be put on perfectly even. This sheet is called the tympan sheet, and is placed there as a standing mark to lay all the other sheets exactly even upon, while he works the white paper.

Having laid on the tympan sheet, he chooses his points; for large paper short-shanked points, and for small paper long-shanked points, and others in proportion to the intermediate sizes of paper; for his points ought to be so placed, that they may prick the point-holes within the grasp of the hollow between his right hand thumb and fore-finger; because, when he works the reiteration, he may the better manage and point the sheet when laying it on the tympan.

Nor will he place his points too near the edge of the paper; because, in working the reiteration, he would be forced to carry his furthermost point-hole the further from him, which in a long number is a loss of time; and the laying sheets quickly on their point-holes adds much to dispatch. Also the less distance there is between the off and near point-hole the better, as it saves time; because he must draw his body so much the farther back, to place that hole on its point; he therefore places the near point farther into the paper than the further point, if it be folio, quarto, or octavo; but to twelves equally distant from both edges of the paper.

By placing the points unequally from the edges of the paper, as in folios, quartos, and octavos, as aforesaid, he also secures himself the more from a turned heap when he works the reiteration; because, without very much altering the quoins, he will not be able to make register; and pressmen, especially if they work upon the same sort of work, seldom or never remove the quoins on the further side of the carriage, nor on the right-hand end of the carriage, but let them lie as gauges for the next form; for thrusting the chase close against these quoins, the register is almost, if not quite made; the compositor having before chosen chases exactly of an equal size, and made equal whites between the crosses, &c.

Having chosen his points, he places them so that they may both stand in a straight line, parallel with the top and bottom sides of the tympan. He then lays the tympan down upon the form, holding the frisket-end of it in his left hand, about an inch or an inch and a half above the face of the letter, and sinks his body downwards till he can see between the form and tympan; and with the ball of the middle finger of his right hand presses gently upon the tympan over the point ends of each point successively, to see if the points fall in or near the middle of the grooves in the short cross. If they fall exactly in the middle of those grooves, the form lies exactly between the middle of both the ends; if they fall not exactly in the middle, he moves the form between the ends of the carriage till they do, and then quoins up both ends of the chase.

Under this phrase, of making ready the form, are comprehended many other operations; for, 1. the frisket must be covered with brown or stiff paper, by means of paste, and cut; to perform which the pressman fits the match joints of the frisket into the match joints of the tympan, and pins them in with the frisket pins; and having beaten the form, turns down the frisket and tympan on the form, and pulls on the covered frisket. Then he runs out the carriage, takes up the tympan and frisket together off the form; then draws the frisket pins out again, and takes off the frisket, and laying it flat on his bank, with the point of a sharp knife cuts through the frisket about all the sides of each page, allowing to each he thus cuts out of the frisket about a nonpareil margin on all the sides of the cut pages; then he pins his frisket again on the tympan, as before.

2. He then sees that the form be properly locked up.

3. That no letters or spaces lie in the white lines of the form; which may happen if the compositor have made any corrections since the form was laid on the press.

4. If any wood cuts be in the form, that they be exactly letter high; if not, for it seldom happens that they are, he must make them so. If they are too low, he underlays them; but examines first how much they are too low, by laying one or more cards or scaleboards upon the face of the wood-cut, and feeling with the fingers of his right hand if the intended underlay be exactly even with the face of the letter, If it be not, he tries thicker or thinner underlays till he has made it on a level.

Having evened his underlay, he unlocks the quarter it is in, takes the wood-cut out of the form, and fitting a scaleboard or card, or what he judges requisite, to the bottom of it, places it thus raised in the form. But yet he trusts not to his judgment altogether for the thickness of the underlay; but locking up the form again, pulls a waste sheet upon it to sink it as low as it will go, and then observes if it be a proper height; thus adding or taking away till it produces a clear and perfect impression. If the wood-cut be too high, it must be planed lower at the bottom; or he may introduce a few sheets of paper in the tympans, and cut away the part that bears on the wood-cut, until he gets it even.

5. If a white page or pages happen in a form, and he uses a new made frisket, he does not cut out that page; but if he works with an old frisket, and that page is already cut out, he pastes on a piece of paper to cover the white page in the form, that it may not black. Those pages adjacent to a white page, will come off harder than any other in the form; to prevent which, the pressman fits a bearer on the frisket. Bearers are generally made of reglets, which, when laid

on the form, will be about a thin lead higher than the letter. They are cut about an inch long, and then pasted and laid on the furniture of the form, with the pasted side upwards; the frisket and tympan are then laid down upon the form, and an impression made, which will cause the bearer to stick on the frisket. Cork bearers are frequently used, which, from their elasticity, in many cases are very useful.

6. He examines whether the frisket bites; that is, whether it keep off the impression from any part of the pages; if it does, he cuts away so much, and about a nonpareil more, off the frisket where this happens.

7. He examines if the beards of the letter print at the feet of the pages; if they do, he considers whether the too short or too far running in of the carriage causes it; or whether it be only the beard of a short page that comes off; if the last be the cause of it, he remedies it by a bearer.

8. If the carriage be run in too short, and the feet of the pages stand towards the platten, the hind-side of the platten will press strong upon the feet of those pages; and if the carriage be run in too far, the feet of the pages that stand towards the hinder rail of the tympan will most feel the force of the platten; and according to a greater or less proportion of that force, and to the softness or yielding of the paper, tympan, and blankets, the feet of the pages and beard of the letter will more or less print hard. In this case he runs the carriage in till the further edge of the platten just covers the feet of those pages.

9. He considers whether the catch of the frisket stands either too forward or too backward. It may stand too forward, though when it is leisurely turned up it stays the frisket; because, when the pressman is proceeding in his work, though he generally throws the frisket quick up with an accustomed, and, as he intends, equal strength; yet if his guess at strength in throwing it up varies, and it comes, though but a little harder up, the catch will make the frisket return; and though, as it sometimes happens, a solid wall serves to do the office of a stay for the frisket, yet with a little too hard throwing it up, the frisket itself will so shake and tremble from end to end, that before it returns to a state of rest, its own motion will throw it back again. If the catch stand too backward, then, after he has given the frisket a touch to bring it down, it will be too long before it come down, and retard the progress of the work, and not unfrequently cause the sheet to slip out of its proper place; he

therefore places the catch so that the frisket may stand a little beyond a perpendicular backwards, that with a properly proportioned strength in the tossing it up it may just stand, and not return; for then with a small touch behind, it will again quickly come down upon the tympan.

10. He considers the situation of the foot-step, and he places it so as may best suit his own stature; for a tall man may allow the foot-step to stand farther off and lower than a short one, because his legs reach farther under the carriage, and he can tread hard to add strength to his pull; when a short man must strain his legs to feel the foot-step, and consequently diminish the force of his pull.

11. The pressman brings his heap, and sets it on the horse, on the near end of the paper bank, as near the tympan as he can, yet not to touch it, and places an end of the heap towards him. He then takes the uppermost or outside sheet, and lays it on the bank; and taking three, or four, or five quires off his heap, he shakes them at each end to loosen the sheets, that with pressing stick close together, till he finds he has sufficiently loosened or hollowed the heap. Then with the nail of his right hand thumb, he draws or slides forward the upper sheet, and two or three more commonly follow gradually with it, over the near edge of the heap, to prepare those sheets ready for laying on the tympan.

The puller lays on the sheets, lays down the frisket and tympans, runs in and out the carriage, takes up the tympans and frisket, takes off the sheet, and lays it on the heap. All these operations are in general mingled and lost in the name of pulling; and as in pulling, so in rolling; for though the person who rolls the form over, distributes the ink, peruses the heap, &c. yet these operations are also lost in the general name of rolling.

To take a sheet off the heap, he places his body almost straight before the near side of the tympan; but he nimbly twists the upper part of his body a little backwards towards the heap, the better to see that he takes but one sheet off, which he loosens from the rest of the heap by drawing the back of the nail of his right thumb nimbly over the bottom part of the heap (but in the reiteration care should be observed to draw the thumb on the margin, or between the gutters, that the sheet may not smear or set off) and receiving the near end of the sheet with his left hand fingers and thumb, catches it with his right hand about two inches within the further edge of the sheet, near the upper corner, and about the length of his thumb below the near edge of the sheet, and brings it nimbly to the tympan, and at the same time twists his body again before the tympan, only moving his right foot a little from its first station forwards under the coffin plank; and as the sheet is coming to the tympan, (suppose it to be white paper) he nimbly disposes the fingers of his right hand under the further edge of the sheet near the upper corner; and having the sheet thus in both his hands, lays the further side and two extreme corners of the sheet down even upon the further side and extreme further corners of the tympan sheet; but he is careful that the upper corner of the sheet be first laid even upon the upper corner of the tympan sheet, that he may the sooner disengage his right hand. If, however, by a quick glance of his eye, he perceives the sides of the sheet lie uneven on the tympan sheet, with his left hand at the bottom corner of the sheet, he either draws it backwards, or pulls it forwards, as the sheet may lie higher or lower on the near corners of the tympan sheet, while his right hand, being disengaged, is removed to the back of the ear of the frisket, and with it gives it a light touch to bring it down upon the tympan, laying, at the same moment, the tympan on the form. He then, with his left hand, grasps the rounce, and with a moderate strength nimbly turns it round; and as it is running in, with his right hand seizes the handle of the bar, and then gently leans his body back, that his arm, as he pulls the bar towards him, may keep a straight posture; because in a pull it has then the greatest strength. He now puts his right foot upon the footstep, while his left hand holds fast by the rounce; as well to rest on the footstep and rounce, as to enable him to make a stronger pull; which will prove longer or shorter according to the strength put to it. Then disengaging his right hand again from the handle of the bar, he gives a quick and strong pressure upon the rounce, to turn it back, and run the carriage out again; and as soon as he has given this pressure, he disengages his left hand from the rounce, and places the fingers of it towards the bottom of the tympan, to assist his right hand in lifting it up, and also to be ready to catch the bottom of the sheet when the frisket rises, and conveys it quick and gently to its place; and while the frisket is going up, he slips the thumb of his left hand under the near lower corner of the sheet, which, with the assistance of his two fore fingers, he rises, and by so doing allows the right hand also to grasp it at the top, in the same manner, which lifts the sheet carefully and expeditiously off the points, and nimbly twisting about his body towards the paper bank, carries the sheet over the heap of white paper to the bank, and lays it down upon a waste sheet or wrapper, put there for that purpose; but while it is coming over the white paper heap, though he has the sheet between both his fore fingers and thumbs, yet he holds it so loosely, that it may move between them as on two centres, as his body twists about from the side of the tympan towards the side of the paper bank.

Thus, both the pressman's hands at the same time are alternately engaged in different operations; for while his right hand is employed in one action, his left is busy about another; and these exercises are so suddenly varied, that they seem to slide into one another's position, beginning when the former is but half performed.

Having thus pulled a sheet, and laid it down, he turns his body towards the tympan again; and, as he is turning, gives the next sheet on the white paper heap a touch with the back of the nail of his right thumb, as before, to draw it a little over the near edge of the heap, and lays it on the tympans, &c. as he did the first; and so successively every sheet, till the whole heap of white paper is worked off.

As he comes to a token sheet, he undoubles it, and smooths out the crease with the back of the nails of his right hand, that the face of the letter may print upon smooth paper. And being printed off, he folds it again, as before, for a token sheet when he works the reiteration.

Having worked off the white paper of twelves, or any form imposed like twelves, he places his right hand under the heap, and his left hand supporting the end near him, turns it over on the horse, with the printed side downwards: if octavo, or similar works, he places his left hand under the heap, and also supports the outside near end with his right hand, and turns it over, *viz.* one end over the other. In performing this, he takes from the worked off heap so much at once between both his hands as he can well govern, without disordering the evenness of the sides of the heap, *viz.* a token or more, and lays that upon the horse; then takes another lift, and so successively, till he has turned the whole heap.

Having turned the heap, he proceeds to make register, which he does by laying one of the sheets just printed, on one side, upon the tympan sheet, for a register sheet, and a waste sheet over that to keep it clean from any dirt the face of the letter may have imprinted upon it, and pulls these two sheets. Then he runs out the carriage, lifts up the tympan, and takes off the two sheets, laying the waste sheet by; but turns the other side of the register sheet, to try how the impression of the sides of all the pages agrees, and lies upon the impression in the first pulled side. If he finds they agree perfectly well, register is made. But if the impression of the last pulled side of the register sheet stand not even with the impression of the first pulled side, either the whole length of the sheet or part, he observes how much it stands uneven; then he loosens the quoin or quoins on the farther side of the press, and removes them backwards till they stand at the proper distance from the sides of their respective corners; then knocks up one or both the opposite quoins, till he has removed the chase, and in consequence has forced the opened quoin or quoins close against their corners. Or if the impression of the last pulled side stand within the impression of the first pulled side, he observes how much also, and loosening the hither quoin or quoins, and knocking up the opposite as before, makes register for the sides of the sheet.

He next observes how the register of the head and foot agree; and if he find they agree on both sides the short cross, he has good register, supposing the compositor has performed his office, by making all his pages of an equal length, &c.

If the impression of the last pulled sheet lie without the impression of the first pulled sheet, towards the upper or lower end of the tympan, he opens the quoins at the respective end, and knocks up the opposite till he has made register; to try which, he pulls another clean register sheet as before, and if he find register agree on all sides of the form, the task is performed; if not, he alters it till it does.

But it sometimes happens that the compositor has not made the white exactly equal between all the sides of the crosses; in this case altering the quoins will not make good register; the pressman, therefore, observes which side has too much or too little white, and, unlocking the form, takes out or puts in such a number of scaleboards as he thinks will make good register, which he tries by pulling a sheet, and if it be necessary, alters it again, till he has pulled a sheet with good register.

Having made register, he proceeds to work it off; but he somewhat varies his posture in laying on the sheet; for, as before, when he worked white paper, he caught the sheet by the upper further corner with his right hand, he now, having taken up the sheet, catches it as near the further side of the further point-hole as he can, with the ball of his right hand thumb above the sheet, and the ball of his fore finger under the sheet, the readier to lay the point-hole over its respective point; which having done, he slips his body a little backwards, and both his hands with it, his right hand towards the near point-hole, with the back of the nails of his fingers to draw or carry it over the point; and the fingers of his left hand, as they come from the further corner, nimbly slipping along the bottom edge of the sheet, till they come to the near corner; and then with his fore finger and thumb lays hold of it, in order to guide the point-hole on that point also; then pulls that sheet, as before, as he did the white paper, and so successively all the rest of the reiteration. The token sheets, as he meets with them, he does not fold down again, as he did the white paper.

The tympans are covered with vellum, forrel, or parchment. The skins should be of an equal thickness, and about two inches and a half wider, and three inches longer than the tympans.

Tympans have been sometimes covered with Irish cloth, which, on account of its evenness, would answer the purpose; but it is so apt to stretch, that the tympans become slack in a short time, and bag (as it is termed), which occasions a slur on the work.

Having provided some stiff paste, he lays so much of it on the edges of the skin, as will cover the tympan, which is also well pasted. He then lays the skin on the tympan, and draws it regularly, as tight as possible, on all sides. That part of the skin that comes on the grooves of the tympan which receive the point-screws, is cut and wrapped round the inside edge of the groove, which admit a free passage for the screws. After having fastened the skin on the sides of the tympan, he draws it towards the joints which receive the frisket, and with a knife cuts across these joints to let them through the skin; he then puts the frisket pins through the same, and makes that end of the tympan fast. He next proceeds to the lower joints, and brings the skin as tight as he can round that part of the tympan. The point-screws are then put on, which prevent the skin from starting.

The inner tympan is covered in the same manner, and in order to prevent its warping, a stick or a piece of furniture is placed in the centre of it, till it be perfectly dry.

The skins are put on either wet or dry; if dry, they should be afterwards wetted, which makes them give for the moment; they are then drawn as tight as possible. As they dry they contract, and are by this means rendered much tighter than they would be if put on wet.

Paper is commonly wet in a trough full of clean water. The pressman places the dry heap on the left hand of the trough, and a paper-board with its breadth before him on his right, laying first a wrapper or a waste sheet of paper on the paper-board, that it may not soil the first sheet of the heap. Then he takes up the first token, and lays it with the backs of the quires towards his right hand, that he may the readier catch at the back of each quire with that hand; he lays that token across the rest of the heap, that he may the easier know when he comes to the end of it.

He takes a quire by the centre of the back in his right hand, and the edge of it in his left, and lays it down upon the waste sheet, opens it, and lays on it a few sheets.

Having laid down his dry laying, he takes the remainder of the quire off the dry heap, with the back of it in his right hand, and the edge of it in his left, as before, and closing his hand a little, that the quire may bend rather downwards between his hands, he dips the back of the quire into the left hand side of the trough; and discharging his left hand of the quire, draws it through the water with his right; but as the quire comes out, he quickly catches the edge of it again in his left hand, and brings it to the heap; and by lifting up his left hand, bears the under side of the quire off the dry paper, laid down before, lest the dry sheet should stick to the wet before he has placed the quire in an even position, and so perhaps wrinkle a sheet or two, or else put a dry sheet or two out of their even position. But this drawing the quire through the water, he performs either quick or slow; if the paper be weak and spongy, he performs it quickly; if strong and stubborn, slowly. To place this quire in an even position, he lays the back of it exactly upon the open crease of the former, and then lets the side of the quire in his left hand fall flat down upon the heap; and discharging his right hand, brings it to the edge of the quire; and with the assistance of his left thumb, still in its first position, opens or divides either a third or half of the whole quire, according to the quality of the paper; and spreading the fingers of his right hand as much as he can through the length of the quire, turns over his opened division of it upon his right hand side of the heap.

Having wet his first token, he doubles down a corner of the upper sheet, of it on his right hand, so that the further corner may lie a little towards the left hand of the crease in the middle of the heap, and that the other corner may hang out on the near side of the heap, about an inch and a half; this sheet is called the token sheet, as being a mark for the pressman, when he is at work, to know how many tokens of that heap are worked off.

Having wet the whole heap, he lays a wrapper or waste sheet of paper upon it, that the paper-board may not soil the last sheet of the heap; then, three or four times takes up as much water as he can in the hollow of his hand, and throws it over the waste sheet, that it may moisten or soak downwards into the unwet part of the last division of the quire.

The paper being thus wet, he takes up the whole heap upon the paper-board, and sets it by in a part of the room appropriated for that purpose, and lays another board upon it; and upon the middle of the board sets about half a hundred weight, and lets it stand by to press, commonly till next morning; for pressmen generally wet their paper after they have done their work at night. All paper would be better if the sheets were separated and turned in the course of the next morning, if it has been wet over night, and pressed again for seven or eight hours.

The warehouseman is concerned with the paper before it is printed, as also with the sheets after they are printed. The paper is delivered to him in bundles, which consist of two reams of twenty quires each, so disposed that the back, or doubling of each quire, lies upon the opening or edges of the next quire. Two of the twenty quires of the ream are called the *cording* quires, *i. e.* the two outsides, because the whole ream is corded or tied up between them; they are also called cassie quires, because they serve as cases for the ream. These are *culled* by the warehouseman, that is, each sheet is examined as to its quality, and that which is fit for use in printing is counted out into ten quires, or two hundred and fifty sheets, to be wetted, which is called setting out paper.

When the heaps which are wrought off are delivered to the warehouseman, the first thing which he does is to hang them about a half-quire thick on the poles to dry, by means of a tool called a peel. This is succeeded by laying the heaps, which is the placing them in an orderly succession of the signatures on benches; and gathering of books, which is the taking the sheet off every heap, beginning at the last heap first, *i. e.* at the left-hand of the range; when a book is thus gathered it is then knocked up, that is, the whole collection of sheets are made to rest on their edges; and, in that position, are shaken gently until they all lie even; after which the book is folded up, that is, the sheets are doubled altogether, according to the nature of the volume. To prevent mistakes in the gathering by putting in two of one sheet or none of another in the book, it is necessary to collate them, which is the examining of every sheet by its signature for the purpose of seeing if they follow in order. When the books are all gathered, collated, and folded, they are told in order to see how the impression holds out, *i. e.* what number of perfect books have been printed off, which are then disposed in heaps of a suitable size, with the back and edges of the different books placed alternately on the same side like the unprinted paper; and, after having been put into the press for a time, they are tied up in bundles ready for delivery.

We have now to notice a comparatively new process for multiplying impressions from cast plates, called, by its inventors, *stereotype* printing.

M. Camus thus describes the mode of stereotyping practised by Didot and Herhan towards the close of the last century; only concealing the composition of the metal of which the types used in stereotyping were formed, and that of the metal which formed the mould.

The types are cast in the ordinary mode, but of metal of a particular composition, and sufficiently hard to bear without injury the pressure required to stamp the metal matrix. After the page is composed, it is enclosed in a steel box, where it is compressed on all sides, and the surface made accurately plane. The page thus disposed serves for a punch. The metal plate intended for the matrix has two essential qualities, that of being able to receive a pure and distinct impression, and that of not being subject to any alteration, on commencing fusion, when by the action of a press it is brought into contact with the heated metal. The punch, or page of moveable types is now placed above the matrix, and an equal pressure is made upon it by a machine, in some respects resembling that used in giving the impress to coin. The matrix is afterwards fixed in a frame, and is ready for the next operation, which the French founders consider as one of the most essential in the process. A table firmly fixed to the ground is provided, and at one side of this table two pieces of wood of convenient height are fixed, with a vertical groove or canal. A piece of wood furnished with a tongue, or feather, is formed to run in these grooves, so disposed as to act in the manner of the rammer used in sinking piles. At the lower part of this piece of wood, perpendicular to its axis, is fixed a screw, and the box or frame which contains the matrix has in its back a female screw to correspond. The matrix is thus screwed firmly to the mass of wood, or rammer, with its face downwards. A drawer or tray of thick paper, or card, is now placed on the table below the descending matrix. This tray is filled with melted type metal, and when the metal is at the point of congelation, a peg disengages the rammer, which falls with its weight upon the metal, which congeals at the same moment. The matrix is now disengaged from the stereotype page by the blade of a knife, and the operation is completed if all the parts of the process have been well executed.* The rammer is raised by a handle; and a thin slip of copper or brass round the matrix regulates the thickness of the plate.

Previous to this period, it may be mentioned, that Firmin Didot in 1796 prepared an edition of the *Logarithmic Tables* of Callet, much in the manner of Vander Mey's *Bible.* The displacement of a figure in works of this kind, from causes well known to printers, often occasions a serious error; and, with a view to prevent similar accidents, after the pages were composed in the usual manner, and finally corrected, the form of types was soldered at the bottom, by which all chance of a figure being displaced was completely prevented.

Towards the end of the year 1798, M. Bouvier, also one of the artists who were engaged in the fabrication of Assignats, stereotyped with considerable success, by a process different from that of Didot and Heran. The metal of his plate was copper, and his mould was formed of argillaceous earth. M. Camus has given a specimen of a page cast in this way, which, however, does not seem so perfect as those fabricated by the other process. M. Bouvier, in extending his invention, applied it to many other purposes, one of which was adapting it to the printing of music.

The success of the French printers in stereotype printing naturally excited the attention of their brethren in England; and the next attempt to introduce the art into England was happily more successful than those which had been previously made. About the year 1800 Mr. Wilson, a respectable printer in London, engaged with the late Earl of Stanhope, whose love for the mechanical arts is well known, for the purpose of bringing this mode of printing into general practice. His Lordship is said to have received his first instructions in the formation of stereotype plates from Mr. Tilloch, the second inventor, and had afterwards the personal attendance of Mr. Foulis for many months at his seat at Chevening, where his Lordship was initiated in the practical part of the operation.

After nearly two years spent in maturing the different processes connected with the operation, Mr. Wilson announced to his friends that the ingenuity and perseverance of Earl Stanhope had overcome every difficulty,—that the various processes had been so contrived as to combine the most beautiful simplicity with the most desirable economy,—and that the public might look forward to the period when, by the application of this art to the manufacture of books, the prices of all standard works would be reduced at least thirty, and in many cases forty *per cent.*

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* This operation is termed *clichage*, from *clicher*, a word signifying to make fall perpendicularly, quickly, and with force, a matrix upon a metal in fusion.

In the year 1804 Mr. Wilson offered, upon certain terms, the art of printing in stereotype to the University of Cambridge, for their adoption in the printing of *Bibles, Testaments,* and *Prayer Books;* but some differences between the syndics and the printer occasioned the contract to be dissolved. The plan, however, has been since adopted both at this University and that of Oxford; and thousands of *Bibles,* &c. are annually issued from their presses printed in stereotype. The art has also been gradually diffused, not only in the capital, but in other cities of the kingdom; and it was carried on to some extent in Edinburgh, by Mr. Charles Stewart, printer to the University, in the printing of school-books, for which, as insuring greater accuracy than the common mode, it is admirably adapted.

The mode of casting stereotype is sufficiently simple. A page of any work proposed to be stereotyped is set up in the usual manner, with the ordinary moveable types. From this page, when corrected, a mould in plaster, the basis of which is gypsum, is taken off, and from this mould an impression is cast in the ordinary type metal, from which the printing is made. Of course the whole of a work to be stereotyped is set up by the compositor in distinct pages, from which casts are formed; and from these casts plates are procured from which impressions may be made exactly the same in every particular as that from the moveable types originally set up. A stereotype plate is, therefore, nothing more than a fac-simile of the page from which it was taken; but the advantage in point of expense is, that a plate of stereotype does not require to be more than the seventh or eighth part of the thickness or height of the ordinary types.

In the selection of a proper substance for the moulds, and the management of the casting, the success of the operation chiefly consists. The head and tail pieces of the older printers were chiefly cast in moulds formed of clay or sand; Ged, Tilloch, and after them Hoffmann, used a composition, of which plaster of Paris was the chief ingredient; while Herhan, Didot, Carez, and others, procured their mould by impressing the types in a soft metal, or metal in the act of congelation. The substance required for this purpose must be of a nature so delicate when soft, as to be capable of receiving an impression from the finest lines, and when dry, must be capable of bearing without injury the action of the melted metal. Gypsum, or plaster, of Paris, when finely pulverized, and mixed with water, soon becomes hard, and will also bear any degree of heat. But gypsum contracts when exposed to heat, and is liable to warp; it is also difficult to expel the air and moisture which it absorbs and retains. The defects of the plaster of Paris are, therefore, to be counteracted by compounding it with other substances less absorbent; but whatever be added, must be capable of receiving and retaining a fine surface, so as to preserve a perfect polish in the plate to be cast from it. The following simple expedient has been recommended as fully answering this purpose. A quantity of common whiting is dissolved in a tub of clean water, and made nearly of the consistence of what is generally used in white-washing. The plaster is mixed with this solution, which makes it contract but little from the heat, and renders it less liable to crack than when the plaster is employed alone.

In making the mould for the page to be cast, a frame of cast-iron is prepared, nearly half an inch wider and larger than the page or pages proposed to be cast, and nearly an inch deep. This frame determines the thickness and strength of the mould. Four cubic pieces of metal are now required, the height of which should be exactly four-fifths of the height of the types; as on the height of these the thickness of the stereotype plate depends. The page or pages, wedged up as usual in the chases or iron frames commonly used, are now to be laid upon the moulding table, and in the openings at the corners of the page are placed the four pieces of metal, on which the iron frame rests when laid over the page.

To prevent the adhesion of the plaster to the types it is necessary to oil over the surface of the page with a soft brush. Then a quantity of the white-wash is taken into a wooden bowl, and as much finely powdered gypsum added to it as will make it into a thin plaster. When reduced to an equal consistence, it is applied to the face of the types with a painter's brush, so as to fill every cavity; and the remainder is then poured in so as to fill the frame. When beginning to harden, the superfluous plaster is struck off with a straight metal rule, to smooth the back of the mould; and when sufficiently consolidated the mould is separated from the page, and dried in an oven.

The mould properly formed, the next process is the casting of the plate. For this purpose, the dried mould is put in a pan about two inches deep with the face upwards, and a small moveable screw is placed at each side or end of the pan, to fix the frame which contains the mould. The fluid metal (which is of the same composition as that used for ordinary types) is now applied to the mould in the pan, and carried to the oven, in which it should remain from one to two hours, to acquire an equal degree of heat; for, on the principle of equal temperature between the metal and moulds, the success of the operation materially depends; and unless the oven be kept sufficiently warm to raise the temperature of the mould to that of the fluid metal, the experiment cannot succeed.

After the plate has been cast, little imperfections are frequently discovered; such as that of the top of the e or similar letters, having been full of dust when the mould was taken. The workman now takes the plate, and after clearing it of all superfluous metal, pulls a proof, marks the defects, and proceeds to make the requisite alterations. If any letter or word chance to be damaged in the course of the operation, it is cut out, and a letter or word from moveable types of the same size, cut to the proper depth, is inserted in its place. When this is done, the plate is ready for the press. The pages are arranged upon wooden blocks, and fastened down with slips of brass and a screw.

Such is the process of stereotyping, as usually practised; and such is its accuracy, that plates may be cast from copper-plates as perfect as the engraving itself. Wood-cuts and ornaments of every kind may be cast in the same manner.

A patent for producing stereotype plates, in a manner different from that now described, was granted to Mr. Augustus Applegath, of Surrey, printer, in April, 1818. Mr. Applegath's plan, however, is so similar to the process of Didot and Herhan, that it is not necessary to describe it. Both his mould and plates are procured by an impress on the semifluid metal in the act of congelation, in the manner originally practised by the French printers; and the instrument he has invented for stamping the impression is the same in principle, though a little different in form, as the *cliche* or stamping machine of our continental neighbours.

This invention is a machine or apparatus for casting printing types. Plate VII. fig. 1, is a side view of that part of the apparatus to which the mould and matrix is attached. Fig. 2, is a horizontal view of the same, the respective letter of reference pointing out similar parts in both figures; *a* is a wheel, having teeth around the greater part of its periphery, for the purpose of effecting an interrupted rotatory motion, as will be hereafter explained. This wheel is attached to the axle or shaft, *b*, which turns in the bearings of the standard or frame; *c* is a flange or parallel plate fixed to the revolving axle, and *d* is also a similar flange or parallel plate, sliding a little distance backward and forward upon the axle, for the purpose of opening and shutting the type mould, which is situated between these flanges at the upper part; *e* is a bridle or forked piece holding the sliding flange, the end of which bridle drops into a mortice-hole in the revolving axle *b*. At the end of this axle a bolt *f* is introduced, that receives the end of the bridle, and this bolt has a worm spring coiled round it, over which a brass cap or socket is screwed to the axle *b*, for the purpose of confining the spring. By means of this spring, therefore, the bolt holding the end of the bridle connected to the sliding flange or plate *d* causes that flange to be pressed up against the fixed plate or flange, *e*, and so to keep the mould close.

The aperture or hopper, as it is called, through which the fluid type-metal runs into the mould, is at top of the parallel plates or flanges *c* and *d*, and the manner in which they lap together, so as to form a square hole between their surfaces, is seen in fig. 2. Below this hopper or gutter, which forms the neck of the type, is the mould *g*, consisting of several pieces accurately fitted together, and adjustable by screws, leaving a long square aperture, into which the fluid metal runs and forms the body of the type. The matrix or die into which the face of the letter is cut, is situate below in the bar *h*, which passes through an aperture in the plates *c* and *d*: this bar is so adjusted and connected to the other machinery, that when the casting of the type is about to take place, the matrix is pressed up and held in close contact with the under parts of the mould.

The bar *h* is mounted upon pivots resting in bearings in the carriage *i*, which enable it to rise and fall; it is pressed upwards so as to keep the matrix in contact with the mould by the spring *k*, and is forced downwards when the matrix is to be withdrawn from the mould by a friction roller *l*, acting against a cam on the inside of the fixed ring *m*, (as the shaft and the other parts of the apparatus revolve.) The position of the matrix bar requiring the utmost accuracy of adjustment in every direction, and this is effected by small screws acting against the carriage of the bar, as seen in the figures.

Supposing a type to have been cast in the mould (the process of doing which will be explained after the construction and operation of this part of the apparatus has been described) it will be necessary to withdraw the type so cast from the mould, which is done by the following means.

A small friction-roller, *n*, is attached to an arm extending from the bolt *f*, and as the shaft *b* revolves, this friction-roller acts against an inclined plane *o*, fixed to the end of the standard of the machine; hence it will be seen, that when the friction-roller *n* comes upon the elevated part of the inclined plane *o*, the bolt *f* will be drawn back, and with it the bridle *e*, which will cause the sliding-flange or plate *d*, attached to the bridle, to recede from the fixed flange *c*, by which means the mould will be opened. As it is desirable that the mould should open in a diagonal direction, two inclined planes, which lock together by means of a guide, are placed upon the under side of the plates *c* and *d*, so that as the plate *d* withdraws from the plate *c*, it necessarily moves in a diagonal direction. The type frequently sticks in the mould and requires some force to remove it, this is done in the ordinary way by a small hook; in the present apparatus, when the plates or flanges open as above described, the type is forced out of the mould by small spring bolts, *p p*, when it falls into a receptacle below.

Fig. 3, is a front view of a portable furnace in which the type-metal is to be melted, and to this furnace two of the machines above described are attached, in the manner in which they are to be used. Fig. 4, is a side view of the same, the letters referring to the like part in both these figures, and also to the part of the apparatus already described.

The furnace and the melting-pot *q* is shewn by dotted lines as situate within the fire-brick case, that and the other parts of the machinery being mounted upon an iron frame with brackets *r r*, upon which the before described type-moulds and their appendages rest; *s* is a fly-wheel turned by a winch, upon the axle of which is the bevel gear that actuates the shafts *t t*. The moulds being in a horizontal position, as shewn at *c c*, in the figs. 3 and 4, have their openings or gutters exactly opposite to the jets *u u* of the melting-pot, and as the shafts *t t* revolve, the tappets *v v*, upon those shafts, strike the levers *w w*, and these pressing down the plungers *x x*, cause the fluid metal to be expelled from the melting-pot *q*, and to be forced through the jets *u u* into the gutters of the moulds, by which means the types are cast. The further rotation of the shafts *t t* cause other tappets *y y*, attached to the wheels upon those shafts, to strike against the wipers *z z* of the wheels *a a*, and thereby carry round the shafts *b b*, and with them the moulds and other appendages of the machine first described at figs. 1 and 2, the toothed segment upon the shafts *t t* taking into the toothed segments on the wheels *a a*, and continuing the rotatory motion of the shafts *b b* as far as is necessary for the performance of the several evolutions of the mechanism explained and shewn in fig. 1 and 2.

When the moulds come again into the horizontal position the injecting of the metal is repeated, and another type is cast in each of the moulds, so that every time the shafts *t* and *b* revolve, a new type is produced in each mould, and is pushed out of the mould by the means already described, and is thence taken and dressed as usual by hand.

The specification concludes by saying. "Having thus described the machine or machinery for casting types, and also certain auxiliary machinery with which the same may be conveniently worked; we declare that we do not intend to claim any part of such auxiliary machinery; but we claim as our invention and patent right the machine or machinery for casting types as shewn in figs. 1 and 2.

Specimens of printing types most generally used.

Canon.

Typograph

Two Lines Double Pica.

Typographia,

Two Lines Great Primer.

Typographia, Ars

Two Lines English.

Typographia, Ars Ar

Two Lines Pica.

Typographia, Ars Arti

25.

Double Pica.

Typographia, Ars Artium

Great Primer.

Typographia, Ars Artium omnium

English.

Typographia, Ars Artium omnium Conservatri

Pica.

Typographia, Ars Artium omnium Conservatrix.

Small Pica.

Typographia, Ars Artium omnium Conservatrix.

Long Primer.

Typographia, Ars Artium omnium Conservatrix.

Bourgeois.

Typographia Ars Artium omnium Conservatrix.

Brevier.

Typographia, Ars Artium omnium Conservatrix.

Minion.

Typographia, Ars Artium omnium Conservatrix.

Nonpareil.

Typographia, Ars Artium omnium Conservatrix.

Pearl.

Typographia, Ars Artium omnium Conservatrix.

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